ON EXSECTION OF THE KNEE-JOINT.

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I HAVE exsected the knee-joint for the following reasons: 1. To cure disease of the joint tissues. 2. To arrest infection of the general system. 3. To remove, as far as possible, the disability of deformity. 4. To avoid amputation of the thigh. Any one of these reasons is a good one for the performance of exsection of the knee-joint. It seems to me there is no excuse for not performing this operation if these reasons are present in a given case. Admit that it is a difficult operation to perform, but that does not prove we ought not to resort to it. The question is: What is the best we can do for our patient?

In many instances we have tubercular disease of the knee-joint. It often happens that this disease begins in the sub-synovial tissue, much as tuberculosis of the lungs begins in the sub-plural tissue. When the disease has made a certain degree of progress we call it "white swelling" of the knee. I suppose that this name comes from the fact that the knee is swollen and that it is white at the same time If this disease cannot be cured by means other than operation, then I advise exsection of the knee in order to remove the affected tissues and prevent any serious systemic infection. That tuberculosis of the knee can be cured by such an operation is attested by abundant proof. I have cured several cases by means of exsection of the knee, even when I have not been able to remove all of the affected tissues.

If we have a local infection, there is danger of the infecting material being carried to susceptible parts of the body. There is no better illustration of this fact than the one we find in the case of a local tuberculosis, such as we have in white swelling of the knee. Such a disease of the knee, which cannot be cured by means other than operation, will in time destroy the life of the patient, because of the effects of general infection. Assume that exsection, as we know it has, will cure the local disease; and then we may assume that general infection will not take place. Hence we prevent infection, and cure our patient by exsection of the knee-joint.

In some instances we have an immovable anchylosis of the knee, with the leg so far flexed as to produce serious disability. There is not only unsightly deformity, but the patient has great difficulty in trying to walk and gets about only in a manner that is uncomfortable and unhappy. It may be necessary for the patient to use complicated and unsightly appliances, as well as crutches, in order that it may be possible to go about at all. The patient is crippled in every attempt to do anything, and cannot engage in the ordinary pursuits of life. These cases may be developed by injury, as well as from disease. I have seen cases of both kinds of etiology: and the two causes may co-operate. A patient may have a "white swelling" cured in such a way as to leave a knee very much flexed and deformed. Another patient may have an injured knee followed by so much pain as to obstruct any attempt to keep the limb straight during the treatment.

In the cases under consideration one of three results may be obtained: 1. A deformed knee with more or less anchylosis. 2. A thigh-stump which may be longer or shorter. 3. A rigid limb with a slight bend where the knee has been exsected. A consideration of what is the best result will lead us to certain conclusions. Of course, a normal, or a nearly normal, knee is the standard result. If we can get an anchylosis of the knee-joint, with the leg bent slightly upon the thigh, accompanied by the removal of the cause of the disease, our patient would have a very useful limb. Such a result would be better than an exsection or an amputation. If a leg is much bent upon the thigh, there being anchylosis of the knee-joint, the limb will be deformed and disabled, and the walking and the working capacity of the patient will be impaired. In such a case, even if the cause of the disease has been removed, a proper exsection of the knee is advisable, because it will enable the patient to do better work and walk more readily. The removal of three or four inches from the lower end of the femur, though it makes the limb so much shorter than the other, is not a contra-indication to an operation.

In a case of right-angled anchylosis of the knee-joint, with the leg projecting backward, the leg may be amputated in the upper third, leaving a short stump projecting backward; such an operation would leave a good surface for pressure upon an artificial limb. Yet even in such a case, I am inclined to think that an exsection of the knee would be better than an amputation of the leg. On the other hand, it might, perhaps, be preferred to an amputation of the thigh, since it might be more suitable for the application of an artificial limb.

If we compare the results of exsection of the knee with amputation of the thigh, we shall find that the former operation is better than the latter. The question is: Which operation gives the least disability? The surgeon who has had practical experience with both operations will have no difficulty in deciding in favor of exsection. Of course, after exsection of the knee, the femur and the tibia become, as it were, one bone. But it has these advantages over an artificial limb applied to a thigh-stump: It does not wear out; it requires less care; it is a more comfortable support; it is much better to walk with; it is not so much in the way; it gives the owner a more acceptable appearance. In some of my cases the limp has been very slight, the patient being able to walk for miles as fast as others who have entire limbs; but patients with artificial limbs on thigh-stumps not only walk slowly, but they limp badly; in a case of exsection of the knee there is no stump-end to get "sore" and cause the owner to "lay up" from time to time. We are not trying to say that a limb after exsection of the knee is in any way as good as one that is normal. The question is: Which is the best result, a thigh-stump or a limb whose knee has been exsected? The practical surgeon will answer in favor of the exsection.

Which is the more serious operation, exsection of the knee or amputation of the thigh? If both operations are performed under careful antiseptic precautions I think they are about equally serious, with, perhaps, at times a small advantage in favor of exsection. In a case that is fully adapted to exsection I think an amputation of the thigh, no doubt would be a more serious operation than exsection. In a case in which exsection would be very likely to fail an amputation of the thigh would be preferable at the outset, since it would subject the patient to only one operation instead of two. Yet if there is a reasonable doubt, if it seems to be possible to save the leg, the surgeon may exsect the knee first, and perhaps have the good fortune to avoid amputation of the thigh; but if the exsection does not succeed, then the thigh may be amputated, and the life of the patient saved. In some cases, however, there is no question as to the necessity of amputating the thigh at once, since the disease of the knee has so far progressed as to make it impossible for the surgeon to save the leg. My point is to give the patient the benefit of a reasonable doubt in favor of saving him a useful limb.

The Operation.—The point of the knife begins on the middle of the lateral aspect of one condyle, and cuts downward and around the upper end of the tibia about an inch below the knee-joint, and then upward on the other condyle to a point opposite where it began; the flap is dissected up from the capsule of the knee-joint, leaving the patella in situ, and then the joint cavity is opened by cutting through the ligamentum patellæ; the patella is removed by enucleation, cutting through the tendo-patellæ, and this is followed by incising the lateral ligaments; the lower end of the femur and the upper end of the tibia are now exposed by flexing the leg; the lower end of the femur is cut off with a narrow exsection saw, so as to leave the end of it convex from before backward; the upper end of the tibia is then cut off, so as to leave the surface concave from before backward: the object is to make the convex end of the femur fit into the concave end of the tibia; but if the ends of the bones do not fit so as to give them the proper angle, they should be sliced off with the saw until that object is accomplished. The angle of meeting of the two bones should be about 160° to 165°. In this operation ligation of blood vessels is rarely required. It is necessary for the surgeon to carefully avoid any injury of the popliteal structures; I have generally saved the posterior portion of the capsule intact.

I have fastened the cut ends of the bones together with nails and screws; about an inch and a half below the flap incision I make a vertical puncture with a small knife down to the tibia, and into this opening insert a bone drill and push it obliquely upward and backward, so as to make it come out near the centre of the cut end of the femur. If I use the nail I drive it through the drilled hole, and then drive it into the lower end of the femur quite firmly leaving the nail-head projecting about half an inch; I drive the screw through the drilled hole of the tibia and then into the lower end of the femur with an instrument made for the purpose, the exposed end of the screw being rectangular. The galvanized wire-nail about one-sixteenth or one-eighth of an inch in diameter and from three to six inches in length answers a good purpose. I have had screws made of nearly the same dimensions as the wire-nails just described; the threads must be of large size in order to hold well.

A drainage tube is inserted in the following manner: It is carried in front of the line of junction of the cut surfaces of the ends of the tibia and the femur; the soft parts posterior to the flap are punctured on both sides of the limb with a bistoury, and the ends of the drainage tube are drawn through the openings; in this way the drainage tube does not interfere with the primary union of the flaps. Interrupted sutures are now put in to bring the flaps together. The parts are covered with antiseptic dressings which are kept on by means of bandages, and the entire limb is put upon a double-inclined plane constructed as follows:

Two pieces of board, one for the leg and one for the thigh, are firmly joined together, end to end, at an angle of about 160°, so as to support the limb slightly flexed where the knee has been exsected. The upper end of the thigh piece is beveled so as to prevent undue pressure upon the skin. A foot-piece is fastened to the lower end of the leg piece so as to bring the foot up to nearly a right angle. A piece of wire-cloth is fastened to each piece of the splint, so as to support both the leg and the thigh, the wire-cloth being bent up by the sides of the limb. Suitable pads are put under the thigh and the leg in such a way as to prevent undue pressure on the popliteal space. The foot is supported by the foot-piece, there being sufficient padding under it. The angle made by the bones after exsection and the angle of the splint are made to correspond as nearly as possible It is necessary to pad the leg so as to prevent harmful pressure on the heel. In fine, a bandage secures the entire limb upon the splint, and weights upon a cross-bar at the lower end of the splint keep the limb from getting out of place.

The principles and results above enunciated may be illustrated briefly by the essential points in a few cases, as follows:

Case I.—H. O'N., a girl, age fourteen years, was admitted to the College Hospital April 24, 1886, having anchylosis of the right knee, the leg being flexed to nearly a right angle with the thigh. She was trying to wear a high shoe, but was very much crippled, and had to be taken care of by her mother. I exsected the knee, removing about four inches of the femur and a thin slice of the tibia. The contraction of the popliteal structures and the hamstring muscles made it impossible to straighten the limb until a considerable portion of the lower end of the femur was removed. In about two months she had firm bony union of the femur and the tibia. She slowly got up and went about with crutches, leaving the hospital October 26, 1886. In two months she obtained employment and supported herself, and the next year she was able to support her mother. Some friends obtained a shoe for this girl, the shoe was four inches in height, but she could not wear it. She found that a shoe with a two inch heel sole was everything she required to enable her to walk without much limp.

Case II.—William Y., age fourteen years, was admitted to the College Hospital April 29, 1886, with a "dry" arthritis of the right knee, accompanied by the three displacements, outward rotary, backward lateral, and backward angular. The bending of the knee was slowly increasing, causing disability, which was augmented by the pain. I exsected the knee, and a good result followed. The patient was discharged from the hospital May 29, 1886. He walks nearly as well as any one in normal condition. His general health is excellent. He is in active business.

Case III.—E. L. S., a girl, age nine years, had a white swelling of the right knee, ending in suppuration and the formation of sinuses of the articular structures. She was so much reduced in health that the exsection of the knee, or the anæsthesia, or both of these influences, came near being fatal; it was with great difficulty that she was restored after the operation. At the time of the operation it was impossible to remove all of the affected tissue. She recovered somewhat slowly, the bones united, the local infection disappeared; the general health became much improved. The patient was discharged from the hospital March 17, 1887, in excellent condition. The following summer she went into the country, and played with other children of her own age. After six years she is in excellent health, and can walk and run successfully. Her limb is better than any artificial limb that was ever made.

Case IV.—A girl, C. D., age five years, was admitted to the College Hospital November 11, 1886, for white swelling of the right knee; she was in a low state of health at the time. I treated her with plaster-splint on the limb, and with internal remedies until January 5, 1887. Then I exsected the diseased knee, and dressed the parts in the way above described. The local condition went on very favorably, repair taking place in the soft and the bony structures with but very little disturbance. The general condition of the patient was all that could be desired until the 20th of January, when an acute capillary bronchitis developed. Death followed the next day. This case was very promising until the development of the acute bronchitis.

Case V.—A boy, age six years, whose mother, as well as his brothers and sisters, except one, had all died of tuberculosis, came to the College Hospital with a traumatic abscess of the lower part of his left thigh, involving the knee-joint and the lower part of the femur. The pathological conditions were those of severe white swelling. After exsection of the knee-joint the patient improved for a time, and then did not do well. At the end of ten weeks the disease returned locally, and the patient began to emaciate. I then amputated the thigh just above the middle. In a few days the soft parts of the stump became very much infiltrated, appearing much like a large white swelling. As the little patient was wasting from day to day, and as the ordinary treatment did not seem to do any good, I changed it for the use of three grains of precipitated carbonate of lime three times a day in milk. In a short time he began to improve, and at the end of four months he was quite well, and left the hospital in very much improved health. He continued to improve for several months, when I lost sight of him, and have not seen him since.

Case VI.—A boy, age twelve years, was admitted to the College Hospital with a fracture near the middle of the right femur. The knee on the same side had a considerable white swelling, the leg being bent about twenty-five degrees and quite firmly anchylosed. The disease of the knee was still in progress. After the fragments of the thigh had united I exsected the knee, and obtained an excellent result, the boy's walk being greatly improved. His general health was much better subsequently. After about two years, October, 1890, he came back to the hospital with tubercular caries of the bone at the seat of the union of the femur and the tibia. He then received injections of Koch's lymph. Soon after this many of the surface glands became enlarged, and the local ulceration was more active. He was taken from the hospital, and I have not seen him since.

Case VII.—C. F., a girl, age nineteen years, was admitted to the College Hospital, with an enlargement of the right knee, like "white swelling." June 15, 1891, a few weeks after admission, I exsected the knee, and the disease at that time presented some of the appearances of sarcoma. The case seemed to make a rapid recovery, going on well for about five or six weeks, when proliferation of the tissues at the seat of operation began to show itself. The conditions were soon of a serious nature. In August I amputated the thigh at the junction of the middle and the upper thirds. After this time she was treated with the bromide of arsenic. The stump healed in a few weeks, and the patient was discharged from the hospital on the twentieth of October in good condition; since that time this patient died, but I have not been able to learn the particulars.

Case VIII.—R. A., a boy, age six years, was admitted to the College Hospital October 19, 1891, with "white swelling" of the right knee. The year previous I exsected the right hip for morbus coxæ, and there was a good recovery from the local disease. In a few days after the patient came into the hospital I exsected the right knee, and found the soft parts and the bones extensively involved; in no other case have I removed so much of the tibia as in this one. It would have been wise to amputate at once, but the parents would not consent to this operation. The cut ends of the bones were quite soft, yet they held the nail firmly enough to prevent displacement. The case did well for two or three weeks; then it did badly, and I urged amputation, but could not get the consent of the parents; in time the patient slowly improved, but the ends of the bones absorbed more or less and permitted considerable displacement to take place. At the present time, April, 1892, this patient is doing quite well; but it is not possible to say what will be the result.

EDITORIAL ARTICLES.

WOELFLER ON THE SURGICAL TREATMENT OF GOITRE.[1]

The author, who dedicates his work to his former teacher, Prof. Billroth, whose assistant he was for many years, states in his preface that the study of this subject has occupied him for the last ten years of his life, and that many will, perhaps, find it to contain superfluous matter; but he did not intend only to consider the views held to-day in regard to the different methods of operation, but endeavored to analyze and study them historically, and, occasionally also, to test their anatomical justification. The treatment of malignant neoplasms of and inflammatory processes in the substance of the thyroid gland and within the goitre were not considered in this work.

I. The methods of treatment of solid goitre may be divided into (*a*) those which are only expected to remove or ameliorate the symptoms caused by the goitre, and into (*b*) those which have for their object to either reduce the size of or nearly entirely remove the tumor.

A. SYMTOMATIC OR PALLIATIVE TREATMENT OF GOITRE.

Although this method of treatment is to-day less in favor than in former years, it can, in certain cases, not be done away with entirely, especially where removal or decrease in the disturbances which are produced by compression of the trachea or œsophagus is desired. The symptoms which are caused by nervous or angiotic disturbances are amenable to symptomatic internal treatment only.

A number of procedures were adopted to relieve tracheal stenosis, of which some are now of only historical interest. Among these latter are: (a) *the severing of the sterno-cleidomastoid muscle.* This procedure is now never practiced, and is, also anatomically, not justifiable; (b) *incision through the skin, the cervical fascia and the sterno-hyoid and*

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[1] On the Surgical Treatment of Goitre. By Prof. Woelfler, of Graz. Monograph. 8vo, pp. 283. Berlin: A. Hirschwald, 1891.

sterno-thyroid muscles. This procedure has a greater anatomical justification, as these structures are attached to fixed points—hyoid bone, lower jaw, sternum. They can, therefore, not give way, and offer considerable resistance to the growth of the goitre. One who has performed many operations for goitre will certainly remind himself of instances where the goitre, after incision of its coverings, bulged forth like a cushion, and respiration became at once easier. These phenomena are absent if the goitre is partially retro-sternal. From a clinical point of view this operation, which must never be performed subcutaneously, as was done in earlier years, is only justifiable if there be immediate danger of life. A success is only to be expected if we find anterior compression of .the trachea; while no relief is to be hoped for in lateral compression. This measure is to be looked upon as a palliative tracheotomy, to be followed after recovery of the patient by a radical operation.

A special position we must take towards the method recommended by Bonnet: *Isolation of the retro-sternal goitre from the aperture of the thorax and simultaneous cauterization of it, in order to fixate the tumor.* The details of the procedure were: The goitre was lifted; it was transfixed by several needles, a fork or troicart (Terrillon's); then the skin situated over the goitre was cauterized with a paste of chloride of zinc to produce sufficient adhesions. We cannot accept the procedure in this form, for cauterization is antiquated and must be rejected. If a goitre can be lifted as far up as above the aperture of the thorax, and this causes relief of the respiratory disturbances, then it may just as well be extirpated. But the importance of this method of dislocation should not entirely be overlooked in the removal of the immediate danger of suffocation. Observation teaches that nature often relieves the patients of the danger of suffocation in this way; *i. e.* by dislocation of the tumor.

[1] Tracheotomy is the only method by means of which we are able to save, to some degree, a patient from the death due to suffocation. It is indicated where the danger is immediate and the performance

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[1] The author gives now a historical review of the above described methods, quoting cases of Dupuytren, Bonnet (1831), Liston (1839), Bouchacourt, Bach, Demme (father and son), Gosslién, Billroth, Stadelmann, Sédillot, Schuh, Cusak, Gross, Reverdin, Terillon and Ollier.

of another radical operation impossible. If a diagnosis of cystic goitre cannot always be made with certainty it will be advisable to precede *tracheotomy*, in doubtful cases, always by exploratory puncture. If fluid be thus evacuated, then, of course, puncture of the cyst will take the place of tracheotomy.

The author considers at length the technique of tracheotomy in the different forms of goitre, and states that it often is very difficult to find the trachea on account of the great degree of dislocation. The best way is to find the larynx, and then follow along it down until the trachea is felt. Long canula must be kept ready and introduced, as the short ones produce ulcerations on the anterior and posterior walls of the trachea. Kœnig's and Salzer's canulas are mentioned. After all obstacles are overcome many dangers are still pending over the patient, especially in those cases where tracheal stenosis has existed for some time and where the patients were already cyanotic or unconscious. Some do not recover even after a liberal amount of oxygen is supplied; they have *unlearned* the act of breathing; the centre of respiration has, probably, become already paralyzed. Some do recover, but have a few hours later renewed attacks of suffocation, which, finally, end fatally. Old people very often die from a complicating pneumonitis.

Tracheotomy is, in most cases, resorted to too late. The author advises, therefore, the general practitioner, if he is not in a position to perform radical extirpation, never to put off tracheotomy, the best palliative, till the last minute, even at the risk of being later reproached by the relatives of the patient, that tracheotomy was not yet indicated or superfluous. Tracheotomy should not immediately be followed by extirpation, and vice versa. W. gives now a table showing the prognosis and value of tracheotomy performed in severe cyanosis in benign goitre. The death-rate is not small, which is due to the delay. Only if tracheotomy is performed immediately after the first or the first few consecutive attacks of suffocation will it save more people from the so-called "goitre-death." (Kropftod.)

An historic review of this method follows. S. Sharp (1751) was, according to Hederns, the first who performed tracheotomy in goitre.

B. METHODS FOR THE REDUCTION OF THE SIZE OR ENTIRE REMOVAL OF THE GOITRE.

I. Internal Treatment of Goitre.—The author first mentions the prophylactic measures, viz., removal of the patient from a locality where goitre is endemic, avoidance of drinking water which is known to come from the "goitre-spring," (Kropfquelle) etc., etc.; but he does not care to consider these *in extenso* in his work, as they do not belong to the *surgical treatment* of goitre. W. speaks of the enthusiasm which accompanied the internal treatment of goitre by iodine and which method has now nearly become obsolete. He says, "This again offers evidence of how often the enthusiasm in medical therapeutics resembles a fire of straw, which burns out as quickly as it originated, leaving nothing behind but the ashes of remembrance." Iodide of potash is even to-day used by some, but W. could not find any modern work where it was used abundantly by the author or had led to many very satisfactory results. The employment of the latter is only a sporadic one, and justly reserved for those cases where a certain result can be expected, viz., in the angiomatous goitres (Billroth and Luecke). He recommends great care in the use of iodine on account of the danger of chronic iodine intoxication, iodine-marasmus. Its use is contraindicated in neurasthenic and tuberculous subjects Small doses should be given to begin with, and these discontinued if they prove harmful or produce no apparent local result after two or three weeks' trial.

Important observations in regard to the action of and complications produced by iodine in the treatment of goitre were made by Lebert (Die Krankheiten der Schilddrüse und ihre Behandlung; *Breslau* 1863) and Deininger (Ueber die Nachtheile der Jodbehandlung des Kropfes; Baye aerztlich, Intelligenzblatt, No. 26, 1875). Quinine deserves mention as a specific in those cases of goitre where the latter seems to be connected with malaria. Woakes has had better results from the use of fluoric acid (½ per cent. sol.) than from iodine.

II. The Local Application of Remedies—Iodine and Mercury.—Already in 1822 was potass. hydroid salve used successfully in the treatment of goitre by Coindet. Luecke advised to add a few drops of the tincture of iodine, as potass. iod. salve becomes only active after it has turned yellow, i. e., when it has become decomposed. The iodine salve, in this form is harmless and certainly less irritating than the tincture of iodine. Its use will prove especially efficacious in cases of recent origin, but it must be continued regularly for several weeks. More recently Gussenbauer (Prague) has warmly recommended iodoform salve (1:15). He applies over the strips of linen, which serve the salve as a basis, warm compresses of Burow's solution. This manner of treatment gave good results in hypertrophic conditions of the thyroid gland of recent origin and in young persons. In goitres of long duration and older persons its efficacy is less certain. Boechat used with satisfactory results iodoform glycerine internally and externally. Hill, Frodsham and Mouat use hydrarg. deuteroiodat (about 1, 1 grammes to 35 grammes of lard). All iodine containing salves will have a beneficent action in young people and goitres of recent origin (school goitre, epidemic goitre, angiomatous goitre). They will reduce the size of the tumor, but will not prevent recurrence, and have, therefore, only a temporary action.

2. *The local treatment of goitre by means of cold, blood-letting, massage, compression, by the galvanic current or electrolysis. Application of cold;* although cold applications, to bring about anæmia and subsequent shrinkage of the goitre, seem to have been used for some time, yet the author thinks that M. Schmid was the first (1883) who has used this means methodically as a remedy for the cure of goitre. He, however, used at the same time potass. iod. internally, and, therefore, it is not quite clear to what particular measure the very satisfactory results which were also noted by Fraenkel (1888) are to be ascribed. In order to estimate the value of cold, *per se*, W. experimented with it in the surgical clinic, at Graz for a year and a half in a number of cases. His conclusions are: the action of protracted application of cold is in many cases an excellent remedy to diminish the size of the goitre and to remove entirely, or nearly so, all disturbances connected with it. This measure is especially efficacious in cases of angiomatous goitre, in the often acute enlargements of the thyroid gland in young persons. The grave phenomena of tracheal stenosis often disappear in one to two days, and in this respect *the*

constant use of cold may substitute tracheotomy. Leiter's tube-apparatus was used. W. quotes cases of young individuals where the use of cold alone caused a disappearance of goitres of a temporary nature. Whether the tumor reappears after some time, he is not prepared to answer. W. ascribes, therefore, to cold, in the therapy of goitre, not only a symptomatic importance, but in some cases it even proves to be a radical remedy..

The author does not think much of the use of *leeches.* They may, however, under certain circumstances come into consideration, where the other means cannot be tried and tracheotomy (in asphyxia) cannot be immediately performed; in congenital or angiomatous goitres.

Entirely to be rejected is *venesection* (cervical veins, according to Hedenn's). *Massage* of the goitre promises only temporary and slight results. In acute enlargement we have better remedies at our disposal, and in those cases where the enlargement is slow we possess methods which have stood the test better and longer.

Compression of the goitre may receive mention here, but a consideration of its pros and cons, the author thinks unnecessary, as the uselessness and torture of this procedure is apparent.

Galvanization and Electrolysis of the goitre do not find many warm advocates nowadays, simply because the procedure is tedious and the result is uncertain and slight. Some authors (Chostèk, 1871, Morell Mackenzie, Ruttner and others) claim good results. As regards a definite decision other and more observations are necessary.

3. *Parenchymatous Injections;* these were, no doubt, pushed into the background by the favorable results of operations. There were and are still many who warmly recommend to try a few parenchymatous injection before operation is resorted to. The author, reminding himself of the many disagreeable occurrences and even sudden deaths connected with this procedure, hesitates to use or recommend it. ' The advantages of this method were often and exhaustively treated of and are well known. He refers to the interesting and highly instructive chapter on this subject in Billroth's

Annual Reports (1860–1870, pp. 207–213) for further information. Billroth, Luecke, Schoalbe, Terillon and Sebiteau reported very good results. Only certain kinds of goitre will be amenable to this form of treatment. Fœtal adenomata, in the stage of development, and the haemorrhagic form of goitre with its products of transformation (necrobiosis, fibrous degeneration and calcification) cannot be subjected to this method of treatment. It is an error, maintained by some, that the tincture of iodine is inactive in adenoma gelatinosum. Its activity was proven by Billroth (1876), by Störk and the author (1877—by experiments on dogs). In order to be successful with this procedure the cases must be carefully individualized. The author gives comparative tables of cases from the clinic of Prof. Billroth (Vienna) treated by injections with tinct. iod. (25 cases), and injections with hyperosmic acid (3 cases), and injections with ergotine (Vienna policlinic; 5 cases). The tables show that the injections of tinct. iod. yield as many good results as disappointments. The treatment is most efficacious in angiomatous goitre, and in young persons at the period of puberty. In spite of these good results the author warns with emphasis of the danger connected with the intra-parenchymatous injection of tinct. iod. There are many cases of death on record following the injection of tinct. iod., caused by embolism, paralysis of the glottis, acute iodine-intoxication and iodine-marasmus; one must be careful to find out, on laryngoscopic examination, whether there is not, by accident, a tumor present, which obstructs lumen of the larynx or trachea. If this should be the case, intra-parenchymatous injection should not be practiced. It is, therefore, perfectly appreciated that, recognizing in general the value of intra-parenchymatous injection, endeavors were made to substitute the tinct iod. by another remedy. Billroth tried Fowler's solution, but without result. Schwalbe recommended alcohol, asserting that the latter was the active principle in the tincture of iodine. Billroth and Löecke, who tried the latter had each a case of death following its use. Many other substances were tried (osmic acid, ergot, permangan. of potass., chromic acid, strychnine, etc.); but the results were either uncertain or accompanied by dangerous complications. W. himself had some good results with hyperosmic acid.

Better and more encouraging results are yielded by the employment of intra-parenchymatous injection of iodoform. Von Mosetig (Vienna) has pursued this course of treatment for the last ten years. His method and conclusions are: R. Iodoformi 1, 00; tetheris 5, 00; bl. oliv. 1, 00; or R. Iodoformi 1, 00; tetheris, ob. oliv. aa 7, 00. This mixture should always be of light yellow color and transparent; as soon as it assumes a brown color it is an indication that the iodine has been liberated and decomposition has taken place. The method of injection is the same as in the use of iodine injections. Five to ten injections are made. Von Mosetig has used this treatment in 79 cases. He had never noted disagreeable side-action; and the effect was in some cases an "ideal one," and in all quite satisfactory. Mosetig's statements were corroborated by L. Frey. The circumference of the neck is decreased from 2 to 4 centimetres. The author himself had good results with this method in three cases. He thinks that this preparation of iodoform will not only substitute but supplant the tincture of iodine.

En resumé, the author says that intra-parenchymatous injections constitute a very good and efficient treatment where a diminution of the tumor is desirable and where we cannot or dare not risk operative interference.

III. The Destruction of Goitre by Cauterization (caustics, actual cautery and galvano-cautery).—In regard to this the writer says: "The insignificant value of the dangers connected with this method make it superfluous to consider it at length. As the destruction of the goitre-tissue by means of caustics or actual cautery will not be done in future, at least not in the manner in which it was practiced in earlier times, it will suffice if I only give a historical review of this method."

The author, however, advocates ignipuncture with fine needles of the substance of the goitre, in cases where, on account of the very large size, no injections or operations can be performed, and by it to cause destruction of the tumor, as is done in the case of a *tumor cavernosus*. He intends to try this method at his earliest opportunity.

IV. Use of the Seton.—This antiquated procedure is dangerous and cruel. It only could be adopted at a time when the knowledge of the anatomy of goitre was very primitive. The reason why it was for quite a long time used and recommended by French surgeons at the beginning of this century was that it yielded by accident, without their knowing it, good results in cystic goitre. This procedure is now condemned by all authorities, and needs, therefore, no further consideration.

V. Ligature of the Goitre; without simultaneous extirpation.—This method served mostly to produce gangrene of the goitre, and must, therefore, be classed among the methods which aimed at a destruction of the goitre-tissue. Ligature of the goitre without simultaneous extirpation of the same is, according to our modern views, such a doubtful procedure that it is well nigh unnecessary to emphasize especially the fact that by leaving the gangrenescent tumor we retain in the wound everything which tends to produce sepses and pyæmia or to cause secondary hemorrhage. This method was, on account of the just stated disadvantages, not frequently practiced. Rulandus is the first who describes it (thirteenth century). The method was recently modified by the use of the elastic ligature. The different methods of ligature, as regards their technique, may be divided: 1. Ligature of the goitre, including the skin (Rulandus, L. Heister, about 1766); 2. Ligature after incision of the skin at the place of the ligature (Malgaigne); 3. Ligature after incision of the skin and exposure of the tumor (Purmann, 1716; Mayor, 1826); 4. Subcutaneous ligature (M. Rigal, 1841).

VI. Amputation of the Goitre.—By amputation of the goitre we understand that procedure by which the accessible and anterior portions of the tumor are removed. This, however, is done rarely in the case of solid goitres and without preceding protective measures, and was only performed by inexperienced and fool-hardy surgeons of earlier centuries; of course, fatal hemorrhage was the result. This method was later (Aurman) modified by the ligature of the pedicle previous to amputation. The écraseur, galvano-cautery and thermo-cautery were, later on, used. The large wound surface caused by these, and the removal of the anterior part of the tumor only, which was erroneously supposed to be the cause of the tracheal stenosis, —while the other portions of the tumor, which more frequently give rise to the tracheal stenosis, are left unaffected,—render this method impractical. In the interest of our science it is to be expected that this procedure will find no imitators, even with our modern improvements. This operation is not justifiable from an anatomical as well as surgical standpoint.

VII. Evidement (*Evacuasiv Strumæ*) (*Kocher*).—This method was already recommended by Purmann, but it was methodically performed by Kocher (1872–1874). "I shall readily admit," says Woelfler, "that evacuation of the goitre-tissue may be the *last* resort, when we can do nothing else, as we have often to take refuge to *morcellement* in other tumors, if they are very much adherent to the neighboring parts, and can neither been enucleated nor separated; but I can never call this a favorable and good auxilliary measure. It should, also, not be elevated to the rank of 'a method.' I have seen nothing good come from it. Billroth tried it in one case, which ended fatally."

VIII. Artificially Produced Atrophy of the Goitre by Ligation of the Afferent Arteries.—"The ligation of the thyroid arteries is certainly an invaluable and interesting addition to the operative treatment of common goitre." (Billroth, on the ligature of the thyroid arteries for the induction of atrophy of goitres. April 5, 1888.)

1. Indications for this method.—(1.) In all very vascular goitres (V. Walther, Billroth, Kocher); in all goitres which have large arteries or numerous veins and capillaries; in all which are easily compressible; perhaps, also, in morbus Basedowii (Kocher.) (2.) In the hypertrophic forms of goitre (Rydygier); especially if the development was quick and the enlargement presents an equal diffusion; perhaps, also, in quickly developed gelatinous goitres. (3.) Exceptionally, also, in other forms of goitre, where tracheal stenosis is present and the danger is increased by extirpation, on account of the paralysis of the vocal cords, or if extirpation, dependent on other reasons, is not advisable, especially if older people are in question. (4.) The method is contraindicated in malignant goitre, cystic goitre, cystoadenoma gelatinosum, as well as in fibrous and calcified goitre. (Billroth, Rydygier.)

2. *What results can we expect from the use of this method?*—The cosmetic effect will be slight, yet the neck will not look as emaciated and ugly as it does after extensive extirpation. What we must expect is a considerable decrease of the phenomena of obstructed respiration, after a few days, and no recurrence of the same. If this does not take place after a few days then this method has not yielded what it ought to. It is, however, significant for this method that splendid results are opposed by utter failures. In these latter there exist, perhaps, more than the four ligated arteries, or circulation is by some anatomical reason rapidly re-established in the goitre. The risk of producing by this method gangrene of the goitre has been shown by experience not to exist.

3. *Technique of this operation.*—Before we enter upon the performance of the operation it will be well to see whether we can discover a large pulsating vessel—the innominate artery—in the median line of the anterior portion of the neck, below the isthmus, between the latter and the sternum. This vessel being well covered and deeply situated, it will, moreover, be advisable to look for it also, later, after the incision for finding the inferior fibroid artery has been made, if the latter is found to be of a calibre equal to that of a common round match, or should not be detected at all. It is not advisable to ligate the two vessels of one side only, although there does not exist a capillary communication between the vessels of the two sides, as demonstrated by Hyrtl and Jaeger-Luroth. If the vessels of one side are only ligated recurrence easily takes place (Billroth, Rydygier). The operation should also be performed simultaneously on both sides. The author states the following in regard to the anatomy, and gives the following landmarks for detecting the super-thyroid artery: (*a*) the cornu of the hyoid bone, in which neighborhood the arch of the artery lies; (*b*) the external margin of the orno-hyoid muscle, which muscle is always to be drawn towards the centre; (*c*) the internal margin of sternocleido-mastoid, along which the incision is to be made. More difficulties are encountered with the ligation of the inferior thyroid artery; (*c*) J. M. Langenbeck gives a very accurate description of the procedure (Nosologie and Therapie der Chirurg. Krankheiten; V. Bd. I. Abth.; Goettingen 1834). Drobnick leaves

the choice of the place of ligation with the individual surgeon. The author thinks that the most favorable point is about a half an inch below the bending of the vertical part of the vessel into the horizontal, for the following reasons: 1. The point where the truncus thyroid cervicalis takes its origin from the subclavian is so uncomfortably deeply situated that one has to look down into a dark funnel, and if it should happen that a vessel should begin to bleed at the deepest point of this funnel one cannot think of an exact and ready control of the hemorrhage. 2. The nearer one gets to the origin of the trunk of the subclavian artery the more difficult becomes the finding of the inferior thyroid artery, as the drawing aside of the sternocleido-mastoid is less easily accomplished in its lower portions, and also the drawing aside of the carotid where it joins the subclavian is a very risky undertaking (it happened, in such a case, to the author, that the carotid was torn off at this angle; a very severe hemorrhage and other disagreeable consequences were the result). The cutaneous incision should not be made between the heads of the sternocleido-mastoid (recommended by Langenbeck), but along the exterior border of this muscle (experience of Drobnick, Billroth, Rydygier and Woelfler). The usual incisions were a vertical one, corresponding to the exterior border of the sternocleido-mastoid, and another to the external border of the goitre itself. This method leaves, however, two large long scars on the neck, and Rydygier therefore recommended, on account of cosmetic reasons, a vertical incision 2 cm. above the clavicle. But with this there is danger of coming into conflict with the subclavian artery. The author, therefore, recommends a curved incision. Considering the propositions of Drobnick and Rydygier and the experiences of Billroth and those of the author, the following procedure may be well recommended:

1. An arch-like incision at the external border of the sterno-cleido-mastoid; its concavity (of the incision) directed outward, leading towards the fossa supra-clavicularics. 2. Ligature of the superficial veins, exposure of the external border of the sterno cleido-mastoid; drawing aside of the latter towards the centre. 3. Careful separation of the internal jugular vein, the vagus and carotid, and drawing aside of these structures inward; exceptionally the carotid may be drawn

outward. 4. Search for the scalenus anticus muscle and the phrenic nerve; the latter serving as a landmark. 5. At the internal border of the scalenus anticus, or somewhat towards the centre of the neck from the internal border of this muscle, we shall find the trunk of the inferior thyroid artery, and still more centrally located the vertebral artery, (Vid, Fig. 33, Surgic. treatment of goitre; Part II). The artery is then isolated, caught between two artery forceps) severed in the middle and then ligated; as the author can only join the opinion of Billroth, that the inferior thyroid artery is very friable, and easily torn. The latter condition being probably due to fatty degeneration, caused by the pressure of the goitre (sometimes also the case with the carotid). Before the vessel is cut through it should carefully be surrounded by the ligatures.

4. Disagreeable phenomena during the operation and course of the wound.

(A.) The infer. thyr. artery may be torn during the act of isolation or ligation, (b). The fibres of the phernic nerve may be included or pulled, and ill consequences result. The course of the wound was, as far as the author's information goes, always normal and uneventful.

5. Results in former and recent times. The results in former times (till 1852) in about thirty-two cases of ligation were:

Five times death.

Five times no or slight improvement, thirteen times a striking improvement, and nine times perfect cure.

Regarding the results in recent times, the author quotes thirty-nine cases (Billroth, Rydygier, Woelfler, etc.,) with mixed results. The writer says: To pass final judgment on the value of this method the number of cases and experience are not sufficient, but they, however, show that, by ligation, usually all subjective symptoms disappear, atrophy or decrease of the size of the tumor is induced, and in some cases not only improvement, but perfect cure took place; that the atrophy was a permanent one was shown in the author's experience, as well as by Rydygier, who subjected his cases to a "revision" after several months.

Will the atrophy be a permanent one? W. quotes here Billroth: "If all four arteries be ligated *yes;* if circulation is re-established, either through one of the principal arteries or through the vasa vasorum, *no.*

IX. *Enucleation of the Goitre-Nodes.*—This procedure was elevated to the rank of a method by Socin; it consists in enucleating the nodes from the parenchyma of the goitre. This procedure was, however, already practiced before Socin by Porta and Billroth. The writer quotes cases of enucleation of the goitre-nodes (Porta, Billroth, Reverdin, Woelfler, O. Bruns, Kocher, Keser, etc.), with only one case of death. Besides he quotes twelve cases of his own, which all had a favorable issue.

Techinque of enucleation.—1. The locality and direction of the incision may be left with the choice of the individual surgeon. I (Woelfler), however, prefer, especially with girls, an incision, which extends from one sternocleido-mastoid to the other arc-like around the jugulum, because this cicatrix is most easily covered; 2. The goitre should, before the operation, be carefully palpated as gelatinous nodes, which may simulate solid nodes, are not appropriate for enucleation (Porta, Woelfler). 3. The veins should be avoided and the parenchyma should be incised at a spot where there are no veins; but if the latter cannot be avoided they should be doubly secured by circumtransfixion before the incision is made. 4. If the hemorrhage from the cortical parenchyma be alarming it is advisable to get the tissue before separating it, between hæmostatic forceps, and thus advance slowly, step by step. 5. The enucleation should be done slowly, as quick and hasty separation of the vessels may lead to hemorrhage. 6. If several nodes are to be enucleated, one frequently succeeds in doing it from the capsule of the first enucleated node. 7. After enucleation, especially if other nodes are to be removed, the cavity from which the node has been removed should be filled with compressing material (iodoform or sublimate gauze), and leave it there for a few minutes, to control the hemorrhage, and later the individual vessels should be ligated. 8. If it be necessary compression may in this way be continued till the next day, and the wound then united. It is best to ligate all vessels immediately after the operation. 9. No open wound should be left on the surface of the goitre; drainage should be provided for. 10. The severed muscles (omohyoid, sterno and thyro-hyoid) should, also, be united.

Difficulties resulting at the operation, and how to combat them.—(A). The most important complication during operation is hemorrhage; it may even prove fatal. The author divides these hemorrhages into (1) that coming from the large vessels, and (2) that originating in the numerous small vessels of the parenchyma. To control it extensive ligation and compression are recommended and described at length. (B). Another difficulty encountered in enucleation consists in that one cannot always make out with certainty the border between the capsule of the gland and surface of the adenoma-node. (C). A third difficulty is often represented by the following state in the goitre: there may exist such a mass of nodules (30 to 40) that they cannot all be removed. If any are left recurrence will surely take place.

The author advises in such cases unilateral radical extirpation of the gland. The entire gland should never be extirpated on account of the danger of induring cachexia thyreopriva.

Course and Termination.—In 60 cases (Billroth, Socin, Woelfler), only two deaths occurred. The course of the wound is always satisfactory. As regards recurrence after this operation, nothing very definite can be stated, as the observations are too recent. The author, however, had already opportunity to see one case of recurrence.

Advantages and Disadvantages of this Operation.—1. The operative procedure is in the majority of cases slighter than in partial or total extirpation. 2. The more extensive hemorrhage in this operation than in extirpation, is one of the disadvantages; but it is wrong to compare the *complicated* enucleations with *uncomplicated* extirpations. If *complicated extirpations* will be compared with *complicated enucleations*, not much will result in favor of the former. 3. The patients are less affected after enucleation than after extirpation. The course of the wounds, also, offers less complications in enucleation. 4. One can always pass over from enucleation to partial or total extirpation, but not *vice versa*. 5. *Another disadvantage* of this operation is that it cannot be performed in every case (adenoma gelatinosum), etc. 6. Finally, recurrence is more likely to take place after this operation than after partial extirpation.

A historical review of the enucleation of goitre is added.

ALBERT PICK.

[*To be continued.*]

POORE'S CONTRIBUTION TO THE STATISTICS OF OPERATIONS UPON TUBERCULOUS HIP JOINTS.[1]

The author reports sixty-seven cases of tubercular disease of hip-joint occurring in children from three to fifteen years of age, operated upon from 1873 to January 1, 1892, and occurring in hospital practice.

Sixty-five joints were excised; in five, erasion was performed; in eight cases the trochanter major was trephined; and in eleven cases the central cavity of the femur was cleaned out. In all the cases of excision the disease was more or less pronounced, and always accompanied by abscess.

It has been the rule to open all abscesses as soon as discovered, and explore the joint if the disease is marked; the parts were scraped or excised, and of late all tubercular tissue has been removed as thoroughly as possible.

The joint was entered in fifty-one cases by the old excision over, or behind, the trochanter major and the diseased parts were removed. In the earlier cases the upper part of the femur was thrown out through the wound and the parts divided with a saw. Later, the bone has been divided *in situ* with a sharp osteotome and the head and neck then removed; the disturbance of the soft parts is much less by the latter method.

In all recent cases the capsule and all infected tissues have been removed as thoroughly as possible, the acetabulum scraped, and carious bone about its rim removed. The parts were then flushed with mercuric solutions (1 to 1000), the wound partially closed with deep and superficial sutures, leaving a large opening leading to its deepest portion ; this was stuffed with iodoform gauze, and over this the usual bichloride dressing. There is no advantage in closing up entirely the wound, or only leaving a small opening for a drainage-tube. Whenever it has been done suppuration and an accumulation of tubercular tissue of the cavity left by the removal of bone has followed. It is difficult to get away all infected tissue, and a good, free exit for such material is an advantage. Since giving up the use of drainage-tubes and trusting to ample openings and iodoform gauze, wounds have acted better, so that there has been less after-curetting than formerly. A good firm cicatrix results above the truncated shaft which not only binds the femur to the pelvis, but also prevents, to some extent, the riding upward of the shaft when any weight is borne by the limb.

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[1] CHARLES T. POORE, M. D., New York, in the *New York Medical Journal*, April 23, 1892.

In fifteen cases access was gained to the joints by an anterior incision made " on the outer side of the crural nerve, a little below and half an inch internal to the anterior spine of the ilium, and passing vertically downward four or five inches. The internal border of the sartorius is first exposed, then the rectus, outer border of the ilio-psoas muscle," or the incision may be made from the outer side and just above the anterior superior spine of the ilium downward on to the capsule of the joint. The latter incision gives more room. The advantages of this incision are many : it readily exposes the joint without much disturbance of the soft parts : it gives a better view of the capsule, bone and surrounding tissues. The joint can be cleaned out more readily than by the lateral incision, and it is the only method by which an erasion can be done without great displacement of the head and neck. This incision was adopted in all cases except those in which there were extensive sinuses behind and below the hip, or where there was reason to expect profound changes in the articulation. If, after gaining access to the joint by this method, a lateral incision is demanded, it can be made without any disadvantage to the patient. Thorough curetting and flushing out with hot water, with partial closing of the wound and stuffing the rest with iodoform gauze, prevents any accumulation of matter.

In many old-standing cases a comparatively clean operation is an impossibility, and suppuration, often profuse, must be expected, and in this class the advantage of a large drainage opening is great as affording ample room for the escape of pus and infective material.

The after-treatment is as follows: As soon as the patient is returned to bed, extension and a long splint extending from the axilla to the middle of the leg is applied, so as to keep the limb at absolute rest, and these are kept on until the wound has closed, the packing being removed and reapplied as often as required. Considerable oozing and bloody serum will saturate the dressings for a day after the operation, but after that, if the case goes on well, the discharge is slight. If at any time tubercular granulations make their appearance the patient should be placed under ether and the parts thoroughly curetted, any suspicious point being removed, either in the bone or soft parts.

If there are abscesses in the soft parts about the diseased joint their cavities should be thoroughly curetted and drained independently of the joint cavity if possible.

In sixty-four cases only one joint was involved, and in three both.

The head and neck were removed in thirty-six cases, and in twenty-four the section was made below the trochanter major. The head alone was removed in seven cases.

There were extensive bone lesions in thirty-six cases, while in the remainder the disease was limited to the head alone.

The condition of the parts removed varied from extensive infiltration and softening of the bone, with perforation of the acetabulum, to simple caries of the head or tubercular abscesses.

In fifteen cases loose bone was found in the cavity of the acetabulum, and in seven the head of the femur was attached. In five of the latter cases the operation consisted only in the removal of the loose head and curetting the cavity. In four cases there was pathological dislocation of the head of the bone, or what remained of it, on to the dorsum of the ilium, and in three of these the end of the femur was ankylosed in this position, dead bone being imprisoned by the new tissue forming the bond of union between the shaft and the pelvis.

In eleven cases the acetabulum was perforated, and in nine intrapelvic abscess was present. In one case the gut and bladder were perforated by the abscess; in one only the gut, at what point could not be made out, but it was probably low down, as in one well-formed fæces passed out through the wound, while in the other water passed from the perforated acetabulum out through the anus.

Secondary abscesses formed in quite a number of cases, especially those in which the wound had been closed by sutures and drainage-tubes used.

In ten cases the end of the bone had to be re-excised after some time, and in thirty-five cases old sinuses curetted on account of the appearance of tubercular granulations.

Simple erasion was performed in five cases. Of these only two persons recovered without a regular excision, the remaining three coming to that operation.

The ultimate result in sixty-six cases is as follows. By cure is meant that all sinuses have closed and there is no symptom of trouble about the hip; by relieved that sinuses are open:

There were thirty-two children discharged *cured*, twenty-five died, three discharged relieved, two discharged not improved, and four in the hospital.

Of those discharged relieved, in one the ultimate result is unknown, one died with causes not connected with the joint, and one, when last heard from, was evidently affected with amyloid degeneration.

Of those discharged not improved, one died shortly after leaving the hospital, and in one the result is unknown.

Of the cause of death, fourteen died from amyloid degeneration, one from amyloid degeneration and peritonitis, two from general tuberculosis, one from acute nephritis, one from septicæmia, one from heart failure, one from coma (uræmic), three from meningitis. and one from exhaustion.

In three of the fatal cases the wound was soundly healed and the children had the use of the limb some time before their death.

In one case the knee joint on the opposite limb had to be amputated on account of advanced disease of that articulation. The time that elapsed from the time of operation to the date of death varied from one day (the case of heart failure) to five years, the average being seventeen and a half months.

Of the cases of perforation of the acetabulum, seven patients died and four recovered.

Of the two patients with perforation of the gut, one died from heart failure soon after the operation; the other recovered and has had no further trouble. He has been out of the hospital for three years, and is well.

Ultimate Results.—A factor that contributes much to the difficulty in walking is the riding upward of the end of the femur upon the pelvis when any weight is borne upon the limb. This riding upward is due to the loose connection of the end of the femur with the pelvis. It sometimes amounts to more than the actual shortening, as measured from the anterier, superior spine of the ilium to the malleolus, but it varies much in different cases. If only the head of the bone has been removed, the neck, unless it has been pulled away by too heavy an extension weight, will be confined in the cavity of the acetabulum by new connective tissue, and no riding upward can take place. On the other hand, if all the neck has been removed, and, further, if section has been made between the trochanters, there is nothing to prevent this displacement every time weight is thrown upon the limb but the amount and condition of cicatricial tissue around and above the end of the bone. For this reason the more of this kind of a buttress there is formed above the point of section, and the more compact it is, the more useful will the limb be. Therefore no attempt should be made to obtain immediate closure of the whole wound. Another practical point is not to keep the end of the bone away from the line of the acetabulum by too powerful extension, or the cicatricial tissue formed will afford too lax a bond of union between the end of the bone and the pelvis, and a flail-like joint will be the result. A strong hip splint should be worn for at least one year after a cure, in order to prevent the new-formed tissue from being elongated.

Of the patients discharged cured, the present condition of twenty-three is absolutely known: One is well eighteen years after discharge; one is well eleven years after discharge; two are well nine years after discharge; one is well seven years after discharge; two are well six years after discharge; one is well five years after discharge; one is well four years after discharge; one is well three years after discharge; four are well two years after discharge; nine are well one year after discharge.

The amount of shortening in some of these cases has increased, while in others there has been but little, if any, change. One patient at the time of discharge had one inch shortening; in eight years it has increased to two inches and a half; one patient at time of discharge had an inch and a quarter shortening, in eighteen months it was an inch and three quarters; one patient at time of discharge had an inch and a half shortening, at the end of six years there was two inches and half; one at time of discharge had an inch and a half, and at the end of one year an inch and a half; one at time of discharge had an inch shortening, at the end of five years had an inch and a half; one at time of discharge had an inch shortening, at the end of two years had an inch and a half; one at time of discharge had an inch shortening, at the end of eighteen months had an inch; one at time of discharge had three quarters of an inch shortening, at the end of three years had an inch and a half; one at time of discharge had four inches shortening, at the end of fourteen years had seven inches shortening.

In the patient who had four inches shortening at the time of discharge at least half was due to atrophy of the limb and arrest of growth. He now has seven inches shortening. For a time he wore a high shoe and would get along with but little difficulty, but he has discarded its use, and now goes about with the aid of a crutch. He is able to bear his weight on the limb and has considerable power over it.

The usefulness of a limb after excision of the hip-joint depends chiefly upon the strength and firmness of the attachment of the end of the femur to the pelvis; the shortening, provided it is compensated for by a proper high shoe, is not the main impediment to easy walking.

There is always some limp, a sinking down of the side of the body on which the operation has been performed, due often to the instability of the support. Notwithstanding this, most of them are able to get about without discomfort. In some cases there is no riding upward of the shaft, while in others it is the chief cause of the difficulty in walking. In many cases most of the normal motions of the limb can be performed while the patient is on his back, while in others flexion is difficult. The limb is certainly not so good as one ankylosed at a proper angle. A successful erasion gives as good a limb as after a cure by the expectant method of treatment.

Cases in which the acetabulum is perforated are not hopeless, provided good drainage is afforded, and this can only be obtained by an excision, the section being made below the trochanter major, no matter what may be the condition of the head. The presence of amyloid degeneration is not a contra-indication to excision, but rather an indication for it, provided the soft parts are not completely riddled with abscesses and the bones profoundly diseased ; in such a case an amputation affords the best chance for saving life. Disease of the pelvic bones is of grave import, and these cases usually terminate fatally in my experience.

Trephining the neck of the femur through the trochanter major was performed upon eight children. The indications are symptoms pointing to disease beginning in the bone, such as painful spasm and night cries, the articulation itself not being involved.

The operation is easily performed by making an incision over the trochanter major, and then applying a three-eighth-of-an-inch trephine, so as to perforate the center of the neck as far as possible without entering the joint.

This is then flushed out with mercuric solution, a small Volkmann spoon passed in to discover if possible any soft point, then a drainage-tube and iodoform, and, over all, the usual dressing applied.

In four cases diseased bone was found ; in the other none. The immediate effect of the operation is always to stop night crying and spasm, and diminish the tenderness about the joint. The ultimate results were as follows : In two there was no return of any disease ; the patients made a rapid recovery and have remained well ever since. The six other cases came to an excision, the pain after some weeks returning and the disease following its usual course. In the two patients discharged cured their histories were such as to leave no doubt as to the nature of the disease—articular osteitis.

Cleaning out the Central Cavity of the Femur.—In some cases of joint disease, after the removal of the head and neck, the cut surface of the shaft presents a dark appearance, the bone is soft and infiltrated, the periosteum is thickened and easily detached, so that the whole shaft can be easily forced out through the wound, leaving the periosteum intact. If the medullary cavity of the femur is reached by the section it is found filled with dirty, dark-colored material; the external shell of the bone is thinned, of a dark color, and soft. In cases where this condition exists the upper portion of the wound may do well, but a sinus, often several, will persist, through which the cut end of the femur can be felt more or less eroded and from which the periosteum has retracted. If the wound is opened and a section made farther down the same unhealthy condition will be found, and in a short time the cut end of the femur will present a condition and appearance the same as before. The wound will seldom close, and after a time amyloid degeneration shows itself, followed by a fatal termination. Since 1884 in all such cases an opening was made into the shaft of the femur on its outer aspect just above the knee joint. Exposing the medullary cavity, a long probe, to which is attached a piece of silk thread and to this a long strip of iodoform gauze, is drawn through the whole length of the cavity in the bone, so as to thoroughly remove its contents; it is then flushed out with bichloride solution, iodoform dusted in, a drainage-tube inserted in the lower opening, and the wound in the soft parts closed, except where the drainage-tube protrudes. The result of this operation is that all the diseased tissue is removed from the medullary cavity of the femur, and, unless there are other causes at work, the wounds close and recovery follows.

In twenty-one cases this condition of the shaft of the femur was found; in eleven, the central cavity was cleaned out, and in ten no operation was done; in the ten latter cases, eight patients died and two recovered. Of the eleven patients treated as above described, two died and nine recovered, one of the patients dying from heart failure twenty-four hours after the operation; the other, three years later, from amyloid degeneration, the femur giving no further trouble. By recovery is meant that the excision wound healed.

In one of the cases of recovery the whole shaft became enlarged but has never given any discomfort.

WHITMAN ON RADICAL CURE FOR FLATFOOT.[1]

The affection is easily recognized. Persistent pain, weakness and discomfort about the arch of the foot, increased by standing or walking, particularly in going up or down stairs, with tenderness on pressure at the junction of the astragalus and scaphoid, are the earliest symptoms. In some cases the arch may appear perfectly normal, while in others the foot is entirely flat. Persistent pain in the feet is almost always of local origin, and demands local treatment. In considering the treatment the important question is, Can it be replaced in proper position? If it can—that is, if its movements are free and unembarassed, not limited by muscular spasm or inflammatory adhesions—the treatment is very simple. An efficient support, a proper shoe, an avoidance of faulty positions, with exercises for strengthening the weakened muscles, will at once relieve the patient. If, however, the reduction of the deformity by manipulation is impossible it should be treated as any other dislocation should be —adhesions should be broken up and the deformity reduced. The patients are usually young adults; the deformity is extreme; the affection rapidly progressing; the patients are almost completely disabled; the symptoms are so urgent that they are very amenable to treatment, and the results are most satisfactory. Excessive muscular spasm and rigidity in a young person I have come to look upon as a very favorable indication, as it shows muscular strength and integrity of bone. A radical cure is possible in all recent cases of flat-foot, and relief of pain and, to a great extent, of deformity may be assured in every case.

The treatment is conducted on the following principles:

1. Forcible reduction and over-correction of the deformity.
2. A temporary support to prevent relapse.

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[1] ROYAL T. WHITMAN, M. D., New York, in the *New York Medical Journal*, February 27, 1892.

3. A proper shoe.
4. Manipulation to stretch contracted and shortened tissues.
5. Exercises to strengthen weakened muscles.
6. A re-education of the patient in the proper manner of walking and supporting weights.

Under ether the foot is forcibly moved in all directions to break up adhesions, and is then forced into a position of extreme adduction or equino-varus, and retained there by a well-padded plaster bandage. Although great force is sometimes used, the after-symptoms are usually slight, and the patient, if he desires, is allowed to walk about on the plaster bandages on the following day. In about a week, or earlier, if there is no pain in the feet, the bandages are removed and plaster casts are taken for the support which is to be used.

Casts are easily and quickly made in the following manner: Seat the patient in a chair; in front of him place another chair of equal height; on it lay a thick pad of cotton batting and cover it with a square of cotton cloth. Put about a quart of cold water into a basin with a tablespoonful of salt; sprinkle plaster on the surface, stirring until the mixture is of the consistence of thick cream, then pour it upon the cloth. Flex the patient's knee and allow the outer side of the foot, previously oiled, to sink into the plaster, raising the edges of the cloth until rather more than one half the foot is covered. When this is hard, spread vaseline on its upper surface, and, having mixed a smaller quantity of plaster, cover the exposed surface of the foot; the toes need not be included. When hard, the two halves are removed and their inner surfaces oiled. They are then bandaged to one another and the interior filled with plaster of the same consistence as before. When the outer shell is removed we have a reproduction of the foot ready for further manipulation. This consists in changing the cast with the exercise of a certain amount of judgment, so that it may resemble a perfect foot—that is, to scrape away the projection on the inner side if any remains, and to deepen the inner and outer arches. It is thus possible to still further overcome deformity which could not be corrected by the forcible reposition under ether. When completed, the casts should stand squarely on the table with no inclination to either side; they are then sent to the founder to be reproduced in iron.

The feet are, if the case is one of long standing, again placed in adduction and the plaster bandages reapplied. No anæsthetic is necessary, as the previous overstretching, with the subsequent rest, has to a great extent removed the resisting muscular spasm. In from one to three weeks, according to the judgment of the surgeon, the bandages are removed and active treatment begun. The flat-foot on which forcible over-correction has been performed is now, although in good position, stiff, and all its movements are restricted and painful, and if the patient is allowed to go about without support and further treatment a recurrence of the deformity is inevitable.

The subsequent treatment is carried out with the aim of regaining free and painless movement in every direction, particularly in adduction. The foot is first immersed for ten minutes in hot water, afterward vigorously massaged, especially about the dorsum, and is then slowly forced into a position of adduction. When the limit of adduction has been reached the foot is firmly held until all pain has subsided, when the patient is instructed to make voluntary movements while the foot is in the corrected position, flexion and extension of the toes, and to contract the flexor muscles of the foot. The foot is then released, and twenty minutes of voluntary exercise follow, and at intervals during the day the patient, by active muscular efforts and passive motion, constantly works to one end—namely, to regain the lost power of adduction—while once daily the inward twisting is performed by the surgeon. Under this treatment the pain and stiffness rapidly disappear, and the foot constantly assumes a better position. The results that can be attained by this treatment persistently carried out, even in cases of long standing and apparently hopeless deformity, are surprising.

Meanwhile a brace for the foot has been manufactured out of thin steel molded while hot on the iron cast. It consists of a broad internal upright position, which covers the astragalo-scaphoid joint, the weak point of the foot; a molded arm reaches from the centre of the heel to a point just behind the bearing surface of the ball of the great toe; an outer arm passes beneath the os calcis and cuboid bones, and upward slightly on the outer aspect of the foot, which is thus held firmly in the brace, and cannot slip away to the outer side, as is the case with braces which depend upon the shoe to hold the foot in position. As the patient is instructed in the proper walk he throws his weight first on the outer side of the foot, thus pressing the external arm down against the sole of the shoe, a movement which at the same time causes the internal projection to press more firmly against the inner side of the foot. This pressure tends to turn the fore-foot inward, relieving the arch from weight. The inward flange prevents abduction, a movement which precedes the lowering of the arch. The brace is complete in itself and does not depend upon the shoe to prevent deformity. It is not in any way attached to the shoe, but retains itself in proper position—it may thus be changed from one shoe to another, and may be kept clean and free from rust. It allows the foot to rest upon its natural supports, the heel and the ball of the foot, providing support only to the weak points, and does not in any way restrict normal motion and activity, which are to be encouraged by insisting that the patient shall assume the proper attitude in walking. This brace is not a spring; it is inelastic, as it is intended to hold the foot in normal position, not to allow a recurrence of previous deformity. Finally, it is comfortable; the painful pressure on the sole of the foot, often complained of when simple arched supports are used being absent.

It is nickel-plated or tin-plated, and is then japanned. No covering is used, and, as it fits the foot perfectly, its presence in the shoe cannot be detected.

The shoe to be recommended is one of the Waukenphast pattern, with a sole broad enough to support the foot, having an inward twist to allow room for the great toe. In advanced cases of flat-foot the inner side of the sole should be built up after the method known as Thomas's, in order to throw the weight more to the outer side while the foot is still weak. The patient is then allowed to go about his usual occupations, no restriction being placed upon waking, provided the proper attitude, with but little divergence of the toes, is assumed.

The entire treatment described has consumed on an average three weeks. Daily exercises are still continued with the stretching until the movements of the foot are absolutely free and unembarrassed. One of the best gymnastic exercises for strengthening the feet is to raise the body on the toes twenty or thirty times, morning and night. The best possible exercise is a proper walk. In an ordinary case the braces can be dispensed with in about six months, when a cure may usually have been accomplished, although all symptoms have disappeared long before.

INDEX OF SURGICAL PROGRESS.

HEAD AND NECK.

I. **A Case of Trepanation for Cerebral Disease.**—By P. SODERBAUM (Upsala, Sweden). The patient, a girl eleven years of age, entered the hospital March 3, 1890. After having suffered from a slight headache three weeks before her entrance she had become paralyzed in her left arm, and, a week later, the paralysis extended to the left lower extremity and the left side of the face. Some groups of muscles were only paretic, while others, as the extensors, supinators and pronators of the hand, were completely paralytic. No disturbances of vision or sensibility. Neither traumatism nor purulent discharge from the ear or nose could be learned from the history of the case. The facial paralysis retrograded under the use of the iodide of potash and ice to the head of the patient. She could also walk somewhat. In the latter half of April convulsions set in without her losing consciousness. May 11th she had a convulsion, after which she found that she could not walk. Continuous vomiting followed, and her intellect was less clear. May 25th she was completely somnolent, complained continually of being chilly, while her body, to the touch, felt reekingly warm. May 25th, an operation was performed. The cranium was resected temporarily, after Wagner's method, over the right sulcus of Rolando. The greatest length of the flap was 5 cm., and its breadth 4.5 cm. Nothing abnormal was discovered except that the pia mater was more turgid than usual in a small district. Several deep punctures were made into the cerebral substance by means of a tenotome, after which an unusual quantity of serum escaped. The surface of the brain was wiped off with sterilized cotton and the flap sutured without drainage. Healing took place by first intention. The vomiting ceased on the day of the operation. May 26th, the patient was clearer. All the movements of the hand were free and unimpeded. June 2d she could walk unassisted across the floor.

June 17th all the movements of the arm were easily and freely made. In the fall of 1891 the writer heard from her that the improvement had continued steadily to continue until now she is to be regarded as well. The writer thinks that a cyst must have been evacuated by the punctures during the operation; he also suggests the possibility of a circumscribed meningitis being present. It is possible that the right lateral ventricle was punctured and evacuated?—*Upsala Läkareföreningsförhandlingar*, bd. 26, s. 68.

II. Operation for Epileptoid Attacks. By P. SODERBAUM (Upsala, Sweden). A young man, nineteen years of age, when five years old fell and struck upon his head. When he reached the age of eight he began to have vertiginous spells; recently, besides this he had presented attacks of unconsciousness nearly every day, and, once, a typical epileptic attack. Six and a half centimeters above the left mastoid process an indentation of the bone was discovered, which extended five and a half centimeters upwards and three to five centimeters backwards. This spot was soft, and pulsated simultaneously with the heart. At the operation this portion was found to be bare of bone and to be a defect, filled with a membrane, (the pia mater,) which was tense with fluid. This was incised. Posteriorly the brain was found to be œdematous to a certain extent. The cerebral mass was scarified, and found to be apparently normal. The wound was tamponed with iodoform gauze, and the skin sutured over this. The temperature rose during the first two days; the subsequent course of the wound was afebrile. Two days after the gauze was removed, when healing by first intention followed. Three pronounced epileptic attacks were observed on the first, second and fourth day after the operation. For nine months he was free from his attacks, when he had two, separated by an interval of one month.—*Upsala Läkareföreningsforhandlingar*, bd. 27, s. 39.

III. Osteoplastic Resection of the Cranium for Traumatic Epilepsy. By Dr. BENDA (Berlin.) October 29, 1890, the writer did an extensive osteoplastic trepanation of the cranium for severe traumatic critical epilepsy in the left parietal region, with removal of a portion of the cortex, according to Wagner's method; and the permanently favorable result, of over five months' duration, he thought, justified the presentation of the patient.

The cannoneer, Wesz, of the second regiment of field artillery, who was formerly entirely well and with no neuropathic hereditary taint, was thrown from his horse, and striking upon the frozen ground, received a wound upon the left parietal region which soon healed, without medical attention, leaving a cicatrix 2 cm. in length. This happened about Christmas, 1888. For one and a-half years he was free from any trouble, beyond headaches appearing now and then. May 6, 1890, he suddenly fell, while unsaddling his horse, and was carried unconscious into the hospital. Here he presented continuous headaches, vertiginous attacks and an apathic state, with petulance and whining. The attacks of vertigo increased in number and passed into fainting spells, followed by trembling of the extremities. Later hysteric attacks, characterized by loud crying, sobbing and foolish behavior, were observed. After four months, September 4, a severe and general epileptic attack made its appearance, which was of several hours' duration, with four less severe subsequent attacks during the next few days. September 15th it was first remarked that the spasms began with trembling in the right foot, to be continued gradually as clonic (Zuckingen) in the right leg, and tonic contraction of the right arm, and finally to end as weaker contractions of the muscles of the opposite side of the body. Transient hemiparesis of the right lower extremity followed the attack. The following day a similar attack set in, when the quivering of the muscles of the right leg were accompanied by similar ones in the right arm. Then there succeeded a hysteric period of fourteen days' duration, which was free from attacks; this was followed by one of four weeks' duration, in which one to two spasms daily regularly made their appearance. These were partly hysteric and partly epileptic in character. The former in the shape of hysteric attacks of anxiety and rage, as well as hallucinations; the latter in the form of a right-sided hemiparesis, ascending to the leg and arm from the foot and sometimes passing over on to the opposite side, together with aphasia. In consequence of these frequent and violent attacks, which were uninfluenced by either the iodine or bromide of potash, the patient began to lose in strength and his mind to fail. This case, though marked by a hysteric state, presented all the characteristics of traumatic cortical epilepsy requisite for operation, as laid down by V. Bergmann in his work, "Die Chirurgische Behandlung der Hirnkrankheiten." The constant appearance of the spasms in one group of muscles, their distinct envolvement in the attack, the extension of the spasms on the same and opposite sides were remarked, and finally the hemiparesis of those muscles first attacked completed the required indications. These, with the rapid decrease in bodily and mental strength, seemed to demand an operation at once.

October 29th the smoothly shaved skull was prepared for operation, the sulcus Rolando was located by Köhler indicator: at the anterior median circumference, where the motor centre of the leg was supposed to be, a cutaneous flap, 11 cm. in length and 9 cm. in breadth was formed, which included the cicatric and central sulcus; the base, 7 cm. broad, being situated over the ear. The edges of this flap were retracted 1 cm. and a bone-flap chiseled out from under this, the bone at the base being cut with a narrow chisel lying flat upon the bone. The flap, consisting of bone and scalp, was loosened and thrown back. As neither the bone nor dura mater presented anything abnormal, the latter was incised by a cross-cut and the brain exposed. The greatly hyperæmic and pulsating cortex, in which the single convolutions and sulci could be recognized with difficulty, presented nothing abnormal, and therefore the motor centre of the leg was sought out by means of the strong faradic current while the patient was deeply anæsthetized. The arm-centre and that of the trunk-muscles was found, while the leg-centre was only discovered after chiseling away a zone of bone, 1½ cm. in breadth at the median and posterior portion of the defect. The centre, a piece of cortex of the size of a nickel, was incised to the depth of two and a half millimeters, the hemorrhage being stopped by ligaturing two veins of the pia mater in the region of the arm centre. The wound was then tamponed with iodoform gauze, the flap laid over this, and dressed with an antiseptic bandage. On awakening from the anæsthetic the patient was bright, yet his right arm was completely paralyzed except his thumb, and the right leg hemiparetic down to the knee. The wound healed uneventfully, if one except a slight rise of temperature of two days' duration. After two days the tampon of iodoform was removed, the soft parts closed by sutures and the cranial defect drained at two opposite points. In the course of seven days the wound had healed by first intention, and in fourteen days the drainage openings had also closed. On the fourteenth day after the operation the paralysis of the right arm suddenly retrograded, so that first, within three days the muscles of the thumb, the biceps and deltoid, then the flexors of the fingers and hand, subsequently the extensors, supinators and shoulder muscles, and finally the interossei, resumed their functions. On the contrary, there arose for several weeks nervous disturbances which gave rise to the fear that the epileptic attacks would set in again. These were restlessness, sleeplessness, tearing pains in the arm and shoulder, a sensation of the right side of the face being asleep, which was also present in the right side of the body; also a peculiar disturbance of speech, which appeared from time to time in the evening, and lasted about one-half hour. This was apparently due to aparesis of the hypoglossus; finally a hysteric attack, provoked by anger, which set in January 20th, and was terminated by slight contractions of the right leg. Recently the patient has been very rapidly progressing onward to recovery; since then he has not had the slightest indication of either an epileptic or hysteric attack, is intelligent, quiet and tractable; he is in the best of health, and has been on a furlough for two weeks without any harmful results. The only disturbances which remain are a very slight weakening of the strength of the right arm, which, measured with the dynamometer, shows a difference of ⅓ between the left and right; further, there is a slight sensation of numbness in the right curvature of the ribs, the right knee and the anterior portion of the right ring finger. He also complains of tiring easily after mental exertion, as reading, writing, etc. The patient was discharged as an invalid.

In the discussion following the report of this case Professor Bruns, of Tübingen, referred to a case where he performed trepanation for cortical epilepsy, dependent upon an apoplectic cyst of the size of a hazelnut. The attacks ceased for three months to recur.

V. Bergmann, of Berlin, would emphasize the point that one can only reckon on success in those cases where the typical picture of Jacksonian epilepsy is present.

Braun, of Königsberg, mentioned a case of cortical epilepsy following injury of the left parietal region, where he operated; he did not remove a portion of the cortex, as a small sanguinous cyst was discovered and removed. The operation was unsuccessful. A second operation was also without result. The epileptic attacks continuing, a third operation was done. As the spasms always began in the right thumb, this centre was sought out by the electric current and extirpated. After this the patient made a good recovery, which was confirmed as permanent after several months. Hence he thinks it justifiable to remove the cortical centre, even if there be discovered nothing abnormal in it.—*Verhandl der Deutsch Gesellsch für Chirurg*, XX Congress, 1891.

IV.—Osteoplastic Operation for Bony Defect in the Cranium.—Dr. By Schönborn (Würzburg). This case which the writer presented at the Twentieth Congress of the German Surgical Association is remarkable on account of the large defect which was successfully filled with osseous tissue.

The patient, Chr. Schl., eighteen years of age, was struck June 7th, 1890, by the iron bar of a hand-windlass, and both frontal bones fractured, with depression of the fragments. The patient became at once unconscious for a short time, recovering soon after, with some confusion of his senses; short-lasting spasms set in and hemorrhage from nose and mouth. The cutaneous wound was enlarged at once, and the fragments, ranging from 1–6 cm. in length and 1–2 cm. in breadth, were extracted. The longitudinal sinus was lacerated; the hemorrhage was stopped by means of a tamponade. On the left side the brain, exposed, crushed and porridge-like, was removed and the dura mater cut into for 3 cm. on the opposite side for fear of a subdural hæmatoma. The wound was tamponaded with iodoform gauze. The wound pursued a completely aseptic course, while the condition of the patient improved at once. The wound cicatrized, though slowly, and was entirely healed by the end of August.

The site of the cranial defect, and its continual pressure by the patient's head-wear, led the writer to attempt its closure by osteoplasty, although the patient was entirely well and possessed of normal intelligence. November 18th, 1890, the cicatrix, which measured 14 cm., obliquely, and 2–4 cm., postero-anteriorly, and corresponded exactly to a corresponding irregular bony defect, was extirpated. The subarachnoidal space was opened several times so that cerebro-spinal fluid escaped. Then the operator cut a tongue-shaped cutaneous flap, after König's method, 25–26 cm. in length, and 6–7 cm. in breadth, on the vertex, and separated from the frontal defect by a span of a finger's breadth. The outer table was then carefully separated from the inner by means of a chisel, in the whole extent of the flap. Naturally one could not avoid splinting and breaking it somewhat. This flap, consisting of bone, periosteum and skin, and which exactly corresponded to the defect, was fitted in and secured by sutures. The wound on the vertex was at once covered by Thiersch's method. Both healed without any disturbance, and January 21st, 1891, the patient left the hospital with a firm and complete cranium.

He was seen again March 31, 1891, and the skull found to be of a normal form, the transplanted bony flap firm and unimpressible, and only projecting over the base of the defect at a small spot. The patient's intelligence was undisturbed. Unfortunately the cosmetic effect was not good, as the skin on the transplanted portions was covered with hair which projected low down into the forehead, while a broad and oblique scar ran across the vertex. Therefore, April 3, 1891, the frontal skin was retransplanted to the bare scalp, and the resultant frontal wound covered by grafts after Thiersch. Again this time the wound healed uneventfully, and the patient was presented to the Congress.

In the discussion of this case J. Wolf, of Berlin, related a case where a similar though much smaller cranial defect was filled. An army officer had made an attempt at suicide five years before, when he had shot three revolver bullets into his forehead, leaving a defect in the bone. This was of the size of a cherry and had a very bad appearance. The dura mater and scar had grown together. A vertical incision was made directly through the cicatrix, another on the left of the defect, about 2½ cm. from the first. The underlying bone was chiseled loose and the whole pushed over into the defect. As it was not quite sufficient to fill it entirely a second smaller piece, continuous with this bridge of skin, was chiseled loose and pushed into the remainder of the defect. Then both incisions were closed with sutures. The result of the operation was excellent. The bony tissue healed in permanently, and the forehead became completely smooth. This case was one of three cases of osteoplasty successfully operated upon by the speaker according to König's methods in which excellent results were obtained.

V. Eiselsberg, of Vienna, in September of 1890, had opportunity to cover a cranial defect of the size of a five-mark piece, which remained after extirpation of a carious piece of bone. He proceeded according to a method which had shortly before been described by A. Frankel. A celluloid plate was so cut that it could be fitted into the defect with great pains and pressure, when it remained firmly fixed there. The cutaneous wound healed by first intention, and the patient has remained well up to now, half a year later.—*Verhandl der Deutsch Gesellsch für Chirurg*, XX Congress, 1891.

V. Repair of Cranial Defects.—By K. G. SENNANDER, (Stockholm). The writer passes in review cranial osteoplasty, and mentions his second temporary resection according to Wagner's method, which was done for epilepsy. The cranium was very thick; the external table and diploe were sawed through by means of Stille's osteotome; only the internal table was chiseled away. Then he gives two cases where he successfully repaired two cranial defects. The first was that of a laborer, 31 years of age, who fell from a straw stack and struck his head upon an iron stake. Behind and above the left ear only a small skin wound could be found. The patient returned to his work, and seven days after he was found unconscious; he vomited and his pulse was 60. Taken at once to the hospital it was found that under the cutaneous wound the bone was broken and pushed into the brain, so that a circular hole, of 2 cm. diameter, was made out. This was enlarged with the chisel, and three quite large fragments of bone were removed, together with some smaller fragments. They had penetrated the dura mater and lay imbedded in the purulently infiltrated cerebral mass. The wound was irrigated and dressed antiseptically with iodoform and iodoform gauze, which was simply placed over the wound. The patient became conscious after the operation, but aphasic symptoms, chiefly amnestic aphasia and paraphlegia, persisted for two weeks. The cerebrum protruded and formed a hernia, which enlarged rapidly. The granulations were scraped away and the periosteum loosened around the cranial opening, which was three by two and a half centimetres in diameter. A lamella of bone was then chiseled from the anterior surface of the left tibia with the periosteum adherent, together with some extraperiosteal connective tissue. This was two to three millimetres in thickness and of exactly the same size as the defect. It was filled in with the periosteum internally, the scalp was drawn over it and sutured with deep sutures. Both the cranial and tibial wound healed by first intention. One month and three days after the implantation of bone the patient was discharged as well and able to work; the cranial defect was felt to be filled with firm and hard tissue. The same was true when he was again seen several months later. In the other case a defect of the size of the end of one's finger and situated in the right parietal region was filled with a piece of the internal table which was extracted from the brain into which it had penetrated two cm. at the time of the accident. Healing took place by first intention under a dressing. The patient—a peasant, 48 years of age—was examined two and a half months after the operation, when the defect was found to be completely filled.—*Upsala Läkareföreningsförhandlingar*, bd. 26, s. 319

VI. Enucleation of the Eye-ball, followed by Meningitis. By Fredrik Ramm. The writer records the case of a man, fifty-two years of age, who some time before had gotten a splinter of wood into his right eye. The splinter was removed and the wound healed with an adhesion between the iris and cornea. The eye was red, the conjunctiva chemotic, swollen, the eye-ball swollen as hard as a stone and painful. There was some photophobia of the other eye. Enucleation, under careful antisepsis was performed, and in the beginning he improved. The day following the operation he had a chill, with rise of temperature and delirium. The cavity of the wound was thoroughly washed out with a 10 per cent. solution of corrosive sublimate, calomel given internally, ice-bags applied to his head and leeches employed. Forty-eight hours after death took place. The brain presented, at the necropsy purulent infiltration of the base and convexity. The right optic nerve was twice as thick as the left. No foreign body could be discovered in the enucleated eye. —*Norsk Magazin for Laegevidenskaben*, R. 4, bd. VII, p. 502.

FRANK H. PRITCHARD (Norwalk, O.)

VII. Malignant Disease of the Tonsils. By DAVID NEWMAN, M. D. ([illegible]gow). Sarcomatous disease is met with in the tonsils in a variety [illegible]rms, but the most common is the round celled or lympho-sarcoma, [illegible] most virulent disease, and one in which secondary [illegible] rapidly develop. Of the fifty-two cases collected nin[illegible]lled round-celled and eighteen lympo-sarcoma, twenty-three [illegible]ases were published simply as sarcomata. In both encephal[illegible] cancer and in round-celled sarcoma the disease extends rapidly, the neighboring lymphatic glands become infested early and the surrounding tissues are speedily encroached upon.

In very few forms of malignant disease has operative treatment been less successful than in those instances in which the tonsil has been primarily attacked.

The cases may be divided into two classes, those in which operative intervention is justifiable either with the object of eradicating or of staying the progress of the disease, and those instances in which palliative remedies can alone be recommended.

Tracheotomy, in the cases submitted to operations, should be performed a week previously, and at the time of the operation the anæsthetic should be administered through the tube; when anæsthesia is complete the larynx should be plugged with a sponge. The different methods of operating are fully discussed, and the results have been out of 144 cases collected 56 have been operated upon. The incomplete methods of operating are all condemned as not holding out the least prospect of cures.

Two considerations only can warrant operative measures, the hope of completely eradicating the disease, or of prolonging life and alleviating suffering.

Only five cases of non-recurrence of cancerous growth are known, and two others did not have local recurrence, but were attacked in other parts of the body.

In the sarcomata eight successful cases are recorded, but one suffered recurrence of the disease in the opposite tonsil, five years later from which she died.—*Amer. Journ. Med. Sci., May, 1892.*

VIII. Chloroform in Tracheotomy. By P. Geffreier (Paris). The author has tabulated 87 cases of tracheotomy performed under chloroform, from a study of which he deduces the following conclusions.

Chloroform is undoubtedl[illegible] of value in [illegible]eotomy in children and involves no more danger tl[illegible] it does ir[illegible] other operation.

The surgeon or a skilled assista[illegible] sho[illegible] minister the anæsthetic, watching carefully its effects upon [illegible] spiration, and stimulating inspiration if necessary by tickling, [illegible]g, etc.

If the respiration is uneven the chloroform should be discontinued and the operation performed as rapidly as possible.

The counter indications to the use of chloroform are advanced asphyxia, prostration from diphtheretic intoxication, and, in a less pronounced degree, decided cyanosis without difficulty in expiration, and slight cyanosis with difficulty in expiration. Neither slight cyanosis without difficulty in expiration nor the tender age of the patient should be considered as contra-indications.—*Rev. de Chirg., December, 1891.* Samuel Lloyd (New York).

IX. Primary Chondroma of the Hyoid Bone. By Prof. Ivan K. Spizarnyi (Moscow, Russia). The author communicates an extremely rare instance of new growth of the hyoid bone. [This is only the third case of the kind yet known in international literature. One of the preceding two, that of a primary chondroma in a woman, has been published by Dr. E. Boeckel in the *Gazette de Strassbourg*, 1862, the other, that of a metastatic cancer in a man with malignant disease of the œsophagus, by Dr. Peter in his *Beitraege fur menschen* *und pathologischen Auotomie des Zungenbeinr*, Basel, 1888, p. 25]. A generally healthy and well-nourished man of 25, a merchant, of a healthy family, was admitted to Professor N. V. Sklifosovsky's clinic on account of a slowly, but steadily growing cervical tumor, causing hoarseness of the voice with a laryngeal timbre, difficulty in swallowing solids, and embarrassment of breathing on lying on his back. The swelling had been first noticed by the patient about five years previously, but his voice had begun to occasionally become hoarse eleven years before his admission. During the last 5 months the vocal alteration had been constant, while there had supervened the other symptoms just mentioned. On examination there was found an insolvent, hard, knobby, oval tumor of the size of a very big plum, situated on the right side of the neck, just below the lower jaw, in the region of the horn of the hyoid bone. The integuments were non-adherent and generally perfectlv normal. The thyroid cartilage was slightly displaced to the left. On examination through the mouth the right facial wall was found to be protruding toward the laryngeal introitur, while about the root of the tongue there could be felt a hard, knobby, slightly movable tumor of the size of a mandarine orange, which obviously constituted a part of the cervical neoplasm. The right tonsil was enlarged, the lymphatic glands just above the cervical swelling indurated. A hyoid new growth diagnosed, and extirpation was resolved upon by Prof. Sklifosovsky. The neoplasm was exposed by a slightly curved incision which commenced at the level of, and three cm. outwards from, the right oral angle to end at the level of the cricoid cartilage. The removal proved to be rather difficult and tedious, since on each attempt at lifting up the mass by means of grasping instruments its tissues at once gave away; in addition, the new growth was closely adherent to the lateral walls of the pharynx and larynx. Ultimately it was isolated, chiefly by a forefinger, and, after the resection of the body of the hyoid bone, close to the right horn, removed with the latter. The hemorrhage was but slight. The cavity was plugged with iodoform gauze, the tampon being dispensed with on the twenty-fifth day after the operation. On the twenty-ninth the patient was discharged with the wound soundly healed, normal breathing and swallowing, and a considerably improved voice. The new growth measured 7 x 6 x 4½ centimetres, and was surrounded with a connective tissue capsule. It proved to consist of myoline cartilage which, in the central strata, had undergone mucoid degeneration. The osseous tissue of the hyoid bone was tracelessly destroyed, the adjacent part of the bone body being altered with osteoporosis.—*Khïrurgitcheskata Letopis,* 1892, No. 2, pp. 186–93, with 2 figs.

VALERUS IDELSON (Berne).

ABDOMEN.

I. Cases of Pneumotomy for Gangrene of the Lung.

By G. W. RUNEBERG (Helsingfors, Finland).

1. The first case was that of a man, twenty-four years of age, who, one day in the spring, while eating, aspirated a piece of potato into his trachea. In September he presented consumptive symptoms and signs of a cavity in the apex of the left lung, together with extensive burrowing of pus out into the region of the left nipple. On opening the pus cavity a fistula was discovered leading up to the lower edge of the left rib, of which a piece was resected. A trial puncture into the lung revealed a slight quantity of pus. An opening was made into the lung by means of the handle of the scalpel and the fingers, as the pulmonary tissue was easily torn with the finger. No large cavity could be found ; the wound was tamponaded with iodoform gauze. The patient's condition improved after the operation ; the purulent discharge ceased and the fistula healed. The physical signs of the apex as well as a profuse purulent secretion, although it had lost its gangrenous odor, showed that a cavity was still present. As the general condition of the patient improved and he wanted to return home, while the cavity showed a tendency to heal, he was permitted to go.

2. The second case was that of a man greatly run down, who was admitted to the hospital with terribly putrid expectorations as well as symptoms of a large cavity in the lower lobe of the right lung. Trial puncture evacuated 100 ccm. of a penetratingly putrid fluid. On the day of the operation this fluid was found to have leaked through

the track of puncture and produced a gangrenous emphysema. A portion of the eighth rib was resected below the scapula and the adherent layers of the pleura punctured with the thermocautery. A large cavity with smooth walls was discovered containing gangrenous fluid and loose gangrenous pulmonary detritus. Although the gangrenous expectorations ceased and the temperature sank, the patient perished the third day after the operation from septic intoxication. At the necropsy the cavity was found empty, but in its vicinity were found another gangrenous focus of the size of a hen's egg, together with two similar and smaller ones in the same lobe.

3. The third case was that of a gangrenous empyema, due to a large gangrenous focus of 8–10 cm. diameter, situated on the surface of the lung. The usual operation for empyema was performed, with resection of the eighth rib in the left scapular line; the gangrenous spot cast itself off and, after seven weeks, the patient was completely well.—*Finska Läkaresällskapets handlingar*, bd. 32, s. 62–65.

II. A Case of Pyothorax Subphrenicus; Operation; Recovery. By J. W. Runeberg (Helsingfors, Finland). The writer communicates a case of subphrenic abscess, operated on successfully in the clinic of Helsingfors, Finland. It was due either to a duodenal or gastric ulcer. The diagnosis, before the operation, was empyema of the pleural cavity. On resection of the ninth rib in the dorsal region and opening the pleura that cavity was found to be empty. A trial puncture revealed pus to be under the diaphragm, which was pushed up quite a distance. There had been complete dullness from the fifth rib down, in the mamillary line, the sixth rib in the axillary line and the lower angle of the scapula in the scapular line. The operation was interrupted and the wound tamponaded. After five days, when it was assumed that adhesions had formed, the diaphragm was incised and 1000 ccm. of thick pus of a disagreeable yetnot gangrenous odor was evacuated. During the progress towards recovery pus appeared in pleural cavity, for which an operation for empyema was done. The patient eventually recovered entirely. The writer reviews the differential diagnosis of empyema and subphrenic pyothorax as well as the various operative procedures indicated. In both cases he would make a high resection, and, in case an empty pleural cavity be found to either draw out the diaphragm and suture it to the edges of the wound at once, or do the same in two sittings.—*Finska Läkaresällskapets handlingar*, bd. 32, s. 87.

III. Case of Cholecystectomy with Formation of a Communication between the Duodenum and the Ductus Coledochus. By Dr. SPRENGEL (Dresden). The writer operated upon a woman, 40 years of age, who presented symptoms of obstruction of the gall-passage, and found a gall-stone in the ductus choledochus. By moderate force it could be pushed into a cavity which was supposed to be the duodenum. A few weeks after the operation the old symptoms returned worse than ever, while the stone was not passed per rectum. A second operation showed, after separation of extensive adhesions, that another stone was present, that it was not this time situated in the ductus choleduchus, but in the cystic duct, immediately before it passed into the enormously distended ductus choledochus. The stone was returned to the gall-bladder only after crushing it through the walls of the duct, when it was possible to examine, the ductus choledochus and hepaticus as far as the liver. A second stone was discovered in the hepatic duct. As this was pushed towards the duodenum the ductus choledochus was so distended as to threaten to rupture the cystic duct at the place of ligation. In order to save the patient's life a fistula was formed between the ductus choleduchus and the duodenum. The operation was carried out with difficulty, and only succeeded on application of a sero-serous (?) suture, opening of the intestine and duct and uniting the openings by means of a continuous suture through the mucous membrane and the former seroserous suture. The recovery was uneventful. Four months after the operation the patient is free from all trouble.—*Verhandl. d. Deutsch. Gesellsch. Chirurg.*, XX Congress, 1891.

IV. A New Method of Resecting the Stomach, with Subsequent Gastroduodenostomy. By PROF. KOCHER (Berne). In 1887 the speaker gave utterance to the opinion that it would be advisable to perform gastroenterostomy after resection of the cancerous portion, instead of doing resection of the pylorus with direct union, as recommended by Billroth. This was based upon two cases which, though they recovered from the resection, perished afterwards without any apparent recurrence of cicatrical stenosis. His experience since then has only confirmed this view. Excepting in especially favorable cases, it is not possible to adjust the duodenum into the large gastric wound left by the resection so that one can close the wound by sutures. This is certainly attainable by modified gastroenterostomy. The speaker opens the jejunum on the convexity and not lengthwise of the intestine, but across it, and adjusts the margins of the wound to the corresponding opening made in the longest diameter and on the anterior surface of the stomach in such a manner that only the margin of the wound of the descending portion of the intestine is directly united to the stomach wound, as is ordinarily done, while the border of the ascending portion, on the contrary, is joined to the aperture in the stomach, 2 cm. removed from the margin. Thus a valve is formed which allows the stomachic contents to flow into the lower portion of the intestine. In three of the latter cases it was found more advantageous, after resection of the stomach, to join the end of the duodenum in an especially prepared opening; this was once made on the anterior and twice on the posterior surface of the stomach, and running parallel to the wound in the stomach. The latter procedure is to be preferred, as it exposes the duodenum to the least traction, but it is only practicable when free access is possible to insert the duodenum in the gastric opening by means of a continuous and uninterrupted line of sutures. This method was first performed wi)h gastroduodenostomy February 3, 1892.

Dr. Kummell has suggested an improvement which greatly facilitates the application of this procedure, namely submucous separation of the gastric wall before incision. This renders a very exact removal of the diseased tissue possible, for by gradually cutting through the serous and then the muscular coats, one is enabled to ligature exactly, and step by step, to convince oneself that the tissue is actually normal and removed from the neoplasm. Although first suggested for the intestine this modification is more applicable to the stomach where the hemorrhage is not so severe. In one of the cases, after preliminarily dissecting back the serous and muscular coats of the stomach, the mucous coat was ligated, and opening of the stomach avoided. This is especially valuable in cancerous conditions, for in spite of proper and thorough irrigations and the employment of antiseptic solutions one is by no means insured against infection. In the other cases the mucous membrane tore, and an occlusive suture was rendered necessary—the usual procedure. This appears quite simple as one has but one line of sutures to do with, and can close the extensive wound from the lesser to the greater curvature without interruption by means of a two or three stayed suture until one has a secure covering of serous membrane. That this method of gastroduodenostomy is practical is proved by the fact that the three cases operated on by this method all recovered. Two cases where resection of the pylorus was done with gastrojejunostomy died, but of complications which do not disparage the operation. One perished from gangrene of the colon, due to extensive adhesions; the other from an improper step in the procedure, as behind the occlusive duodenal suture a loose, circular ligature was applied; this cut through and led to perforation. Out of eleven recoveries which Kocher obtained, nine were cases of carcinoma. Of these latter three are still alive; one patient was operated on three years ago (May 12, 1888), and is completely well. As she is the mother of a physician she is under careful surveillance.

Escher, of Trieste, in the subsequent discussion pointed out that Morisani, of Naples, employed the submucous method in resection of the stomach and intestine. He himself had operated on a case after this method, and was very much satisfied with the results.—*Verhandl der Deutsch Gesellsch für Chirurg., 1891.*

V. Case of Partial Resection of Cœcum for Gangrenous Typhlitis; Recovery; Fatal Angulation of Intestine After Years. By G. TILLMAN (Halmstad, Sweden). The patient, thirty years of age, was first operated on August 2, 1885. He then had been suffering for four days from violent symptoms of intestinal obstruction. The operation revealed extensive gangrene of the anterior portion of the cœcum and the beginning of the ascending colon. Resection was done with difficulty, and sutures carefully applied; the operation lasted four and a half hours. The patient progressed slowly to recovery in five weeks, and remained well for five years. October 10, 1890, symptoms of obstruction again made their appearance and an operation was done October 22d. On account of the former operation another resection was thought impossible, so enterectomy was performed and an intestinal fistula made in the right iliac region. The patient died towards the end of the third day. The necropsy revealed general peritonitis but no fecal effusion into the peritoneal cavity. The occlusion was found to be due to a kinking of the intestine at the splenic flexure of the colon. The small intestines were either adherent to the abdominal wound or matted together near the cœcum.—*Nordiskt Medicinskt Arkws Ny fjold*, Bd. II., Aft. 1.

VI. Bassini's Method for the Radical Operation of Inguinal Hernia. By DR. ESCHER (Trieste). The speaker has operated in the past two and a half years on 53 cases of hernia, according to Bassini's method, and he has come to regard this as the most rational and the best, although his results are not so brilliant as Bassini's. This he ascribes to the relatively large number of complicated cases which he operated upon. While Bassini had 222 uncomplicated cases out of 262, he had only 35 uncomplicated out of 52, while 9 were incarcerated and 9 irreducible. Besides these the speaker's cases also included hernias of various portions of the large intestines, and 5 had been incarcerated shortly before the operation. Of his cases, 34 healed by first intention (25 uncomplicated cases, 5 incarcerated and 4 irreducible ones), 17 by suppuration (15 uncomplicated, 3 incarcerated and 4 irreducible); 2 died (1 incarcerated and 1 irreducible). Both of these fatal cases are not to be ascribed to the method but to the circumstances under which they were operated on. One of them, a man 73 years of age, with an incarcerated hernia, died from pneumonia, and the other who suffered from fatty heart and a large hernia of the large intestine and omentum, after the operation perished from fatty embolism. In the remaining cases the speaker was able to trace the result in 28 cases, which had been under observation from 3 months to 2 years and 5 months after the operation. Out of these, in 25 cases he found a permanent cure, and only a recurrence in 3 cases, which followed in 4 and 9 months respectively. These latter the writer explains by atrophy of the abdominal muscles which rendered the application of an exact suture impossible. He especially emphasizes the fact that all the patients were discharged without a truss, as the suture was sufficient, even under trying circumstances, for example, where the patient suffered from cough and influenza or ascites. He calls direct attention, as Bassini has recently done, to the employment of silk.

In consideration of the details of the method and complications of his cases, the speaker must declare separation of the sac from the spermatic coral as more difficult than Bassini claims it to be, as fully a third of his cases presented considerable difficulty in this regard. He follows Bassini's advice to begin the separation at the neck, where the elements of the spermatic cord are more easily recognized. Accidental injury to the cord led, in two cases, to castration; in three other cases castration was performed, once on account of sarcoma of the testicle, once on account of the vermiform process being adherent to the testicle, and in a third case as it was impossible to isolate the cord. In three cases where cryptorchismus was found the testicle was replaced in the scrotum, where once, on account of improperly applied sutures to fixate the testicle, hemorrhage and suppuration into the vaginal tunic took place. Escher warns against too firmly compressing the deep layers of muscle and fascia by the sutures, as in two cases he saw infiltration follow, with consequent tedious suppuration in one of them. Finally he points out that in two cases he operated in two sittings, with advantage, tamponading the inguinal canal and then proceeding with the operation after 4 to 12 days. By this modification one may successfully operate on unfavorable, incarcerated and inflamed cases, radically.

Finally the speaker recommends the method as the most rational the best and the most certain, by means of which, with employment of the two sittings one may operate on complicated cases.

Wolfler, of Graz, opened the discussion by stating that experience shows that, in the radical operation of hernia, isolation of the hernial sac is often the source of the greatest difficulty, and on account of the frequent recurrences he would present an operation for consideration which he has employed in about fifty cases within the last three years without a single recurrence. This consists in: 1. Incision above the external aperture of the inguinal canal, with separation of the fibres of the external oblique; 2. Opening of the hernial sac, with cauterization of its entire inner surface by means of the thermocautery. Application of an internal circular suture at the neck of the sac, according to Czerny; 3. Isolated sutures applied between the internal oblique and Poupart's ligament. The rectus muscle is then drawn over and sutured to Poupart's ligament. The obliquis externus is carefully sutured, leaving only a small aperture for the spermatic cord. When the speaker began to use his method that of Bassini was not known. He regards his method as less dangerous; he has not had a single fatal case. Excepting two cases, which were accompanied by suppuration he has not had a case which did not heal by first intention. He intends to make an extensive report of the final results.

2. Bergmann, of Berlin, does not believe that there is a method, for the radical operation of inguinal hernia, which protects from recurrence, in male patients. In the male the opening for the passage of the spermatic cord remains, and becoming distended it may, at any time, give rise to recurrence of a hernia. This condition can only be remedied by simultaneous castration. The radical operation of inguinal hernia, in women, on the contrary has given him the best and most lasting results. In several cases, which he operated on several years ago, he has not seen a recurrence.—*Verhandt der Deutsch Gesellsch für Chirurg.* XX Congress, 1891.

FRANK H. PRITCHARD (Norwalk, O.)

EXTREMITIES.

I. Operative Treatment of Irreducible Dislocations of the Great Toe and the Thumb. By JORDAN LLOYD, F. R. C. S. (Birmingham, Eng). The author reports two cases; (1.) The first was a backward dislocation of the great toe operated upon after unsuccessful attempts at reduction. A mounted man, æt. 40, fell with his horse, his right foot under the animal in such a way that its entire weight came on to the toe of his foot with the foot in a vertical position. On admission to hospital the right great toe was found completely dislocated on to the back of the metatarsal bone; slightly abducted and flexed at the phalangeal joint. It could be moved laterally without much pain; the rounded head of the metatarsal bone projected prominently in the sole of the foot, the skin being stretched tightly over it. Attempts at reduction by traction and manipulation under anæsthesia were entirely unsuccessful. On the following day the limb was duly exsanguinated, and a 2-inch vertical incision made, with its centre over the head of the metatarsal bone, which lay immediately beneath the skin. The head of the bone was found between the heads of the flexor brevis pollicis muscle, the internal head of which was about half torn across. The anterior ligament, with its imbedded sesamoid bones, was torn away from the metatarsal bone and had "shut back" behind the rounded head, constituting itself the chief if not the entire obstacle to reduction. The tendon of the flexor longus pollicis lay on the inner side of the metatarsal bone. Even after exposure of the parts it was impossible to reduce the dislocation until the anterior metacarpo-phalangeal ligament and the sesamoid bones had been completely divided by a free vertical incision made in their median line. Reduction then occurred at once, but recurred as rapidly until the wounds between the sesamoid bones, the capsule, and the muscle were sutured closely with catgut. No vessel was tied at the operation, although the tissues around were infiltrated with coagulated blood. Under aseptic dressings and immoblization a perfect *cure* was obtained in a few weeks.

(2.) The second case was an unreduced backward dislocation of the thumb, operated upon after four months. A girl, æt. 7, had slipped, catching her thumb against the side of a door. Immediate but unsuccessful treatment had been applied by another surgeon. After four months the thumb was found completely dislocated backward; the head of the metacarpal bone projected markedly forward, and was curved by a resistant layer of soft parts; the base of the first phalanx lay behind the metacarpal head, and was slightly abducted; the phalangeal joint was semi-flexed and readily movable. No pain had been complained of for several weeks. After sterilization and exsanguination of the parts a 2-inch incision was made over the front of the metacarpal head in the line of the thumb. Below the skin the bone was covered with newly organized fibrous tissue, which was divided and the articular surface of the metacarpus exposed; the phalanx lay completely behind the metacarpal bone and had attached to its base the anterior metacarpo-phalangeal ligament, which had been torn from its upper attachment and had "shut back" behind the metacarpal head. The heads of the flexor brevis pollicis muscle had been torn apart and lay posteriorly to the metacarpal bone, where they had become attached by newly formed fibrous tissue. The anterior ligament was freely divided vertically at its middle, and after a few fibres of the internal head of the short flexor had been divided transversely, reduction was with little difficulty effected; the tendon of the long flexor was not seen—it certainly did not lie between the bones. The deformity recurred at once, but this was readily controlled by suture of the divided ligaments and muscle in front of the metacarpal bone. The wound was duly dressed and the limb put up with the fingers folded into a fist. The patient attained a satisfactory *cure* in a month, the movements being but slightly limited in comparison with the other limb.

In remarking upon the cause of irreducibility in fractures of this kind, the author particularly emphasizes the importance of the fact that the head of the bone pushes its way through the muscle above the level of the sesamoid bones, the anterior metacarpo-phalangeal ligament being at the same time torn away from its metacarpal attachment, and these two structures, which are closely incorporated with each other, "shut back" behind the protruding head and become closely applied to the anterior part of the articular surface of the displaced phalanx. The "shutting back" of these structures is due partly to their own elasticity and partly to the pull of the remaining attachments to them of all the short muscles of the thumb or great toe.—*London Lancet*, Feby. 27, 1892.

JAMES E. PILCHER (U. S. Army,.)

II. Bacteriological and Anatomical Investigations on Lymphangitis of the Extremities. By F. FISCHER (Strassburg). Fischer, together with E. Levy, has subjected the statements of Verneuil and Clado, who found the streptococcus in lymphangitic abscesses and asserted erysipelas and lymphangitis were identical, to examination; not only lymphangitic abscesses, but also inflamed lymphatic vessels were examined. Small pieces of inflamed lymphatics were excised,' under all precautions, from patients who were received in the clinic, suffering from severe suppurative processes with simultaneous lymphangitis. These were inoculated, after careful comminution upon agar and gelatine plates. The result of the bacteriological investigation was, in eight cases of excised inflamed lymphatics, three times staphylococcus pyogenes albus, once staphylococcus pyogenes aureus, twice staphylococcus cereus albus, once bacillus coli communis, once a mixed infection of staphylococcus pyogenes albus and aureus. In two cases of typical reticular lymphangitis the staphlococcus pyogenes albus was discovered in both cases. The lymphangitis abscesses—eight cases were examined—presented four times staphylococcus pyogenes albus, three times a mixed infection of staphylococcus pyogenes albus and aureus, once a mixed infection of staphylococcus pyogenes albus and streptococcus pyogenes and twice streptococcus pyogenes. These facts prove that the view of Verneuil and Clado is not correct. Demonstration, by culture, of the presence of micro-organism in the excised pieces of tissue was easy, yet their microscopic demonstration was a task which required much time and patience. The inflamed lymphatic vessel is not entirely closed by a thrombus, and the micro-organisms are inclosed in the thrombus. The endothelium of the lymphatic is preserved, the wall of the vessel thickened and infiltrated with round cells; a small infiltration of round cells was also found around the capillaries. The results of the investigation may be recapitulated as follows:

1. Lymphangitis of the extremities is due to various micro-organisms of suppuration.

2. By entrance of the micro-organism into a lymphatic a thrombus is formed.

3. The same micro-organisms are demonstrable in the thrombus as are found in the original suppurative focus. The presence of the streptococcus pyogenes is no proof that lymphangitis is an erysipelatous process, as no difference can be drawn between the streptococcus pyogenes and the streptococcus erysipelas.—*Verhandl Deutsch Gesellich fur Chirurg.* XX Congress, 1892.

III. Acute Infectious Myelitis of the Upper End of the Femur.—By Max Jordan (Heidelberg). The writer separates infectious osteomyelitis of the epiphyses from that of the diaphyses, and thinks it justifiable for anatomical, clinical and therapeutic reasons. The anatomical difference lies in the different localization of the same process which, in the majority of the cases, attacks the growing bone. In the diaphysic forms the micro-organisms range themselves near the cartilaginous disc of the epiphysis and lead to the formation of pus, which extends further into the medullary canal and outwards to the periosteum, between which and the bone, it continued to progress, often with such intensity as to produce necrosis of the entire shaft. As a rule, the non-vascular epiphysic discs offer an impassable barrier, and thus protect the neighboring joint; in some cases, running a violent course, it may be broken through and an effusion into the joint be a secondary, rarely enacted, consequence. In epiphysic osteomyelitis there is a primary localization of the inflammation in the articular end of the bone, *i. e.*, between the epiphysic disc and the articular cartilage. The joint is early involved, as there is but one direction for the pus to extend, and that is in the direction of the articular cartilage. The anatomical relations of the upper femoral epiphysis are peculiar. As the cartilaginous disc is situated at the boundary between the head and neck of the femur one would think it proper, strictly speaking, to regard the head only as epiphysic. The writer, however, places the boundary in the region of the trochanter minor, and thus designates osteomyelitis of the neck as epiphysic, as Schede has done in one case. Embryologically, as is seen in the new-born, the head, neck and trochanters form the only epiphysis, while in the further growth of the bone the trochanter, major and minor, each receive a cartilaginous disc from which ossification is completed. Then the neck of the femur presents the same peculiarities of other epiphyses, in being, anteriorly completely and posteriorly chiefly, surrounded by the articular capsule and included in the joint. These anatomical factors render the clinical course of the disease comprehensible, for, as it runs its course near the joint or at the upper end of the femur an immediate envolvement of the joint is the consequence. Schede states that the articular affection either soon, or even immediately, marks the symptoms of the bone, and in most cases its diagnosis is difficult, as the disease is usually not observed at first, but comes under the surgeon's notice as a severe articular inflammation. The diagnosis is of great importance in the treatment, for simple incision and search for the purulent focus in the bone by trepanation is by no means sufficient, as in the diaphysic form. For, to expose the focus in the bone the joint must be opened, and in order to remove it a typical resection must be done. The earlier this is done the less the destructive process is advanced and the better will be the chances for recovery with a functionating joint. Indeed, an early operation will find the joint nearly intact, enable one to extirpate the affected portion and in a relatively short time yield a perfect articulation. This affection is very rare. Schede and Stahl have communicated five cases of epiphysic osteomyelitis, of which only one ran its course in the hip joint. Müller has described sixteen cases from the clinic in Göttingen, all of which, excepting two, came under observation after the first stage had passed. Finally, Sannelongue, who has had an immense experience in this disease, regards this form as very rare. He has seen but two cases, and reports, a fatal one with luxation of the head of the femur backward. The writer describes, *in extenso*, two cases. In both the operation was the means of saving the patients' lives. They had been confined to their beds for five weeks, and were in such a serious condition that if left to themselves they would certainly have perished. The operation changed at once the entire scene, for, by radical removal of the primary focus the inflammatory process was extinguished, the fever fell at once, the pain disappeared, the albumen disappeared from the urine, and in eight weeks the patients were discharged cured. If one be content with simply evacuating the pus, though the direct danger is removed, the patient is exposed to the dangers of chronic suppuration and its reaction on the organism. In the first case of the author the functional result was not good. The necrosis was so far advanced that the resection was made low on the neck; the periosteum was destroyed, preventing regeneration of the bone. This was due to 'following the expectant treatment. The advantages of the radical method are demonstrated by the second case. The osseous lesion was circumscribed and the periosteum intact. Therefore, the head was enucleated subperiosteally, leaving a periosteal cylinder, from which a new head developed. The articulation was nearly intact, the soft parts unchanged; neither fistulæ nor abscesses were present. Finally, the muscles were well nourished and resumed their functions at once, after the process had healed. This is a matter of great importance, for, as is seen in chronic articular affections, especially the tuberculous, the muscles lose much of their functionability, though in chronic osteomyelites the shortening is less, while the vital prognosis is rendered less favorable by exposing the individual to the dangers of a chronic course. This speaks against Volkmann's suggestion to make the resection through the necrotic portion and await demarcation. The earlier the resection the better will be the functional result. As there ia no danger of a recurrence, no constitutional disease being present, the results of this treatment are permanent and favorable.—*Beitrage zur klinischen Chirurgie,* Bd. 7, Hft. 3 p. 493.

GENITO-URINARY ORGANS.

I. Treatment of Ectopia of the Bladder.—By Dr. SCHLANGE (Berlin). In order to avoid certain disagreeable consequences, following closure of the congenital defect in the bladder by flaps, especially the formation of concrements and the appearance of cystitis, it is necessary to make the bladder from the mucous membrane alone. Hence, Trendelenburg proposed, several years ago, to loosen the sacroiliac synchondroses with the chisel, and then to approximate the edges of the wound and the stumps of the pubic bones until they touched. Such a procedure is quite serious under any circumstances. The writer has tried, with success in several cases, to approximate the margins of the defect in a simpler manner, namely, by rendering the recti muscles movable. An incision, 10–15 cms. in length, is made at the outer side of this muscle, on a level with the anterior superior spine of the ilum as deep as the fascia of the tranversus, which is carefully avoided in order to prevent the formation of a hernia, and extending down to the pubic bones. The rectus muscle is also separated from the subjacent structures and the pubes. It is easily separated from the transverse fascia; its pubic attachment was separated by chiseling through the ascending ramus of the pubes, thereby loosening the bone with the muscle attached. An attempt to make an osteoplastic closure of the pelvic arch, as proposed by Neudörfer, was impossible, on account of the bones being too small and drawn upward by the muscles attached. The recti were so movable that they could easily be sutured, after extensive freshening up of their margins. Silver wire seems to be the best material for suturing, as it will remain a long time in the wound without causing any disturbance by its swelling. The sphincter vesicæ should be left unclosed only in those cases where too little of the vesical wall remains to permit a reservoir to be formed; in such cases one may form a urethra most easily, according to Thiersch's well known method. Where, however, the vesical defect is relatively small and quite a voluminous bladder is possible, the urethra should be formed at least in the prothatic portion, similarly to the bladder, by freshening up and suturing the edges of the defect. As after-treatment, the speaker recommends tamponading the gaping abdominal incisions with iodoform gauze, which, if the patient remains in a relatively good condition following the operation, one may leave for even 14 days in the wound. The writer then presented a 13 year old boy whom he had operated on two years before by this method. The patient suffers from incontinence, and has a fine fistula at the root of the penis, which he had when discharged from the hospital. Since the operation he has been well, and is now in a relatively satisfactory condition. Thiersch, of Leipsic, observed, in the discussion, that the method of turning the skin inward does not originate from him. He regarded the bladder formed by Schlange as too small. If there be no vesical reservoir then a sphincter is of no service.

Rydygier, of Cracow, tried Freudlenburg's procedure in a case; the child died. In a second case he operated in two sittings; the vesical margins were united, yet healing did not set in. In still another case he operated after the same method as Schlange, including fragments of bone from the pubic arch, which modification he regards as very important. Schlange, of Berlin, in reply to Thiersch, stated that he only sought to preserve the sphincter in those cases where much of the bladder was present. *Verhandl. d. Deutsch. Gesellsch. für Chirurg.* XX Congress.

Frank H. Pritchard (Norwalk, O.)

II. Two Cases of Ruptured Bladder.—By P. A. LLOYD, F. R. C. S. (Haverfordwest, Eng.) The author reports two cases which occurred in the practice of Dr. Lediard, Surgeon to the Cumberland Infirmary. The first case was an extra-peritoneal rupture treated by suprapubic drainage. A woman, æt. 21, after a railway accident, found herself unable to stand or walk on account of inguinal and crural pain, although no bruises, or excoriactions, or pelvic, or femoral injuries could be discovered. Complete anuria existed; catheterization drew off small amounts of bloody urine. After recovery from shock marked inguinal and hypogastric pains were present, especially on pressure. Abdominal poultices and opium were administered. On the third day peritonitis was evident, and on the fourth marks of contusion of the abdominal wall over the bladder ; voluntary micturition reappeared and persisted at frequent intervals. On the eleventh day a tumor was noticed in the hypogastric region ; dullness was present from the pubes nearly to the umbilicus, and a distinct edge could be felt at the upper limit of the swelling of the shape and appearance of the distended bladder. Hypogastric pain, fluctuation and purulent urine developed, together with troublesome vomiting and a temperature of 100° to 102.6°. On the thirty-first day, under chloroform, a two-inch median incision over the pubes gave exit to about thirty ounces of very malodorous purulent urine. Exploration of the cavity revealed, opening into the bladder close to the entrance of the left ureter, an aperture large enough to admit the tip of the forefinger, with round edges thickened and coated with phosphates. Flushing with hot boracic lotion and siphon drainage was applied, resulting in a *complete cure* on the one hundred and first day. The urinary functions resumed an entirely normal character.

The *second case* was an intra-peritoneal rupture treated by suture of the wound. A man, æt. 30, lying supine, received upon his abdomen the weight of a companion who was thrown from a vehicle. There was no shock and, at first, but little disability. He suffered from urgent desire but inability to micturate. Under chloroform by a lithotrity evacuator and an aspirator about a pint and a half of bloody urine was drawn off. The next day patient presented an anxious expression, a small and thready pulse, a distended abdomen, and an absence of urine in the bladder. Abdominal section by Mr. Page, of Newcastle, discovered a collapsed bladder behind the pubes with a star-shaped rent about two inches long on the posterior surface; this was sutured with catgut, but *death* occurred before the completion of the operation. A large quantity of blood-clots and urine was found in the peritoneal cavity and signs of beginning peritonitis were evident. —*London Lancet, Feb. 6, 1892.*

JAMES E. PILCHER. (U. S. Army).

III. Foreign Bodies in the Bladder. By Dr. ALEXANDER L. EBERMANN. (St. Petersburg, Russia). The author relates two interesting cases, one of which refers to a young lady who introduced into her bladder a bundle of false hair (for masturbating purposes). Some time afterwards she married and had two normal labors. Shortly after her second confinement she fell severely ill, which induced her to seek admission to a hospital. During her stay in the latter it was repeatedly noticed that she was voiding hairs with her urine. The lady's condition being hopeless, no attempt at the extraction was made by the author. Shortly after her admission the patient died. On the *post-mortem* examination it was found that the sojourn of the hair bundle had caused severe cystitis with the perforation of the bladder both into the vagina and peritoneal cavity. The other case is that of a middle-aged married merchant who, when visiting on business a strange town, and experiencing an ardent "call" to sexual intercourse, sought advice of some local residents of his acquaintance, the latter happening to be members of the famous *Skoptzy* sect ("self-castrating people"). The consultants advised him to the effect that he "should take a thin wax-candle from an *îkona* (a holy image), dip it into an image-làmp's oil, fasten a thread on the candle's end, and introduce the instrument into the urethra." The patient followed the suggestion, but, unfortunately, during his trying to extract the appliance from the canal, the thread gave way, and the candle slipped down into his bladder. The author, to whom the patient applied several months later, succeeded in removing through the urethra first the candle's wick, then several bits of wax, and lastly a stone of the size of a bean which had formed around a wax nucleus.—*Vratch*, No. 10, 1892, p. 245.

(VALERIUS IDELSON, Berne).

WOUNDS, INJURIES, ACCIDENTS.

I. Ideal Dressing for Abdominal Wounds. By H. A. KELLY, M. D. (Baltimore). The author has for two years past used a dressing which hermetically seals the wound in a thin layer, with certainty preventing the invasion of pathogenic organisms from without. This dressing is easily made, simple, and always satisfactory. After closure of the incision, the skin, the line of the wound, and the sutures are dried, and two layers of sterilized gauze or cheese-cloth, large enough to project five to ten centimetres (two to four inches) beyond the incision on all sides, laid on the skin. This is saturated with the following adhesive mixture, which is evenly distributed over the whole surface.

R Squibb's Ether, or Washed Ether, and Alcohol, absolute, equal parts.
Bichloride of Mercury (Merck's recryst.) enough to make
the solution . . . . $\frac{1}{10000}$
[Anthony's] Snowy cotton, enough to make a syrupy consistence,
added in small pieces, stirring.

As soon as this is poured over the wound evaporation begins to take place at once, and the celluloidin hardens, gumming the gauze fast to the skin. To avoid delay in waiting for this to grow quite hard, and to prevent adhesion to the cotton applied above it, the whole surface is freely dusted over with a finely powdered mixture of iodoform and boric acid: 1-7.

The wound thus sealed with celluloidin gauze may be left untouched for a week or more, when the dressing should be softened with water, or more rapidly with ether, the gauze lifted off, and the stitches taken out.

If there are any signs of suppuration, as evidenced by pain, local tenderness and redness, associated with elevated temperature, the dressing should be removed earlier and the discharge of the stitch-hole abscess promoted in the usual way.

Sufficient cotton may now be heaped upon the abdomen to pad out the inequalities for the application of the bandage. Common cotton may be substituted for absorbent and prepared cotton, by simply sterilizing it in the Arnold steam-sterilizer. *Amer. Journ. Obstet. Dec. 1891.*

GYNÆCOLOGICAL.

I. Cystorraphy for the Cure of Vaginal Cystocele. By Dr. Tuffier (Paris). Fixation of the bladder to the anterior abdominal walls (cystorraphy) is proposed by F. as a means of cure of vaginal cystocele. It may be performed as an adjunct to colporrhaphy, anterior elytrorhaphy, and hysterorrhaphy or suturing of the uterus to the anterior abdominal wall. The feasibility of the operation, and its safety as well, was demonstrated upon animals preliminary to its performance upon the human subject. The operation is done as follows: The bladder is filled with from 250 to 300 grammes of a solution of boric acid, and an incision of the abdominal walls is made as if for supra-pubic cystotomy. The peritoneum is then separated from the bladder until that portion lying adjacent to the vaginal wall is bared. After partial emptying of the bladder the latter is drawn strongly upward and its lateral portions sutured to the abdominal wall. For this purpose 4 silk threads are passed through the bladder wall and then through the abdominal parietes. The left side is sutured first, to avoid some increased difficulties met with upon this side. Should the tension be considerable with danger of the cutting through of the sutures, the urachus at the summit of the bladder, after previous partial resection, may be likewise sutured with final closure by means of buried sutures of the abdominal wound; the dressing of the wound by iodoform gauze and tamponing of the vagina completes the operation, the latter being only removed on the 15th day, when the patient may be allowed to sit up. The sutures, in favorable course of the wound healing, may be removed on the 7th day. T. has operated by this method in 2 cases; the first subsequently suffered from a slight prolapse of the urethra, which was cured by an anterior elytrorraphy. At the end of 2 years, having been in the meanwhile under observation, she was found to be free from her former difficulties.—*Annal. de Gynecol.* 1890, T. XXXIV, p. 21.

II. A New Method of Treatment for Recto-Vaginal Fistula. By Dr. G. Felizet (Paris).—The method of F. is as follows: After passing a hollow sound through the fistulous opening he passes the index finger of the left hand into the rectum, puts the perineum upon the stretch with the thumb, and splits the recto-vaginal wall in a direction upward and backwards, by means of a half-moon shaped incision, until the fistula is reached. In this manner 2 fistulæ are formed, one being a vagino-perineal and the other a recto-perineal. The latter is now, as in the case of a common rectal fistula, split upon the hollow sound and packed with antiseptic gauze. The entire operation can be performed in 10 minutes, and requires neither freshening of the surface nor the application of sutures. The injurious effects of the rectal contents being removed in this manner, the original fistula heals spontaneously, assisted, it may be, by the occasional application of the solidstick of nitrate of silver.—*Annal. de Gynecol.* 1891, T. XXXIV, p. 17.

GEO. RYERSON FOWLER (Brooklyn).

III. Hysteropexia Abdominalis Anterior Intraperitonealis in Retroflexions and Retroversions of the Uterus. By Dr. LUCIAN I. CHROSTOWSKI (St. Petersburg, Russia). The author details eleven cases of ventrofixation made by Professor K. F. Slavïanšky in women aged from twenty-four to thirty-two. Nine of the patients had retroflexion, which in two was accompanied by extensive adhesions between the womb and the rectum, pelvis and appendages, while in seven the uterus was mobile. A tenth patient was suffering from retroversion with dense adhesions between the organ and rectum, etc. The eleventh case was that of a complete uterine prolapsus in a virgin. The operation was indicated by a train of intractable agonizing symptoms, including lumbar and hypogastric pains, obstinate constipation, dysmenorrhœa, menorrhagia, metrorrhagia, reflex neuroses of various kinds, etc. In three cases the operation was made after Leopold's method, in seven after Czerny's (*vide* the *Annals of Surgery*, September, 1889, p. 234), and in one after Jacob's. Its duration varied from twenty to forty minutes. The after course was always most satisfactory, the temperature never rising above 37.6° C., and the abdominal wound rapidly healing *per primous*. The patients were allowed to 'get up on from the fifteenth to the twenty-first day after the operation. In every one of the cases all the symptoms vanished tracelessly, the womb assuming a permanent position of a beautiful anteversiflexion. In none of the patients has any relapse yet occurred. In one case twenty-eight months passed since the operation; in three from twelve to twenty-one; in the remaining from one and one-half to nine.

The author was able to collect from international literature as many as 393 cases of hysteropexia for uterine posterior displacement (including Slavïansky's ten cases). An elaborate analysis of the series justifies him to lay down the following general propositions:

1. The best method of hysteropexia consists in a direct fixation of the womb to the anterior abdominal wall by means of horizontal stitches embedded within the abdominal wound.

2. The operation is indicated in such cases of laparotomy for disease of the appendages or for uterine tumors in which there is simultaneously present retroflexion or retroversion, giving rise to pronounced symptoms. Also in cases of fixed retroflexion or retroversion causing severe symptoms. And in such cases of mobile posterior displacement of the womb in which there are present otherwise intractable severe local or reflex symptoms.

3. Contra-indications for ventrofixation are identical with those for any abdominal section. The possibility of future conception does not contra-indicate the operation in question.

4. The procedure affords a reliable and radical means for curing the uterine displacement and for permanently freeing the woman from all the morbid manifestations.

5. The latter, however, frequently disappear but gradually.

6. In a majority of cases ventrofixation does not interfere either with conception or with a normal course of pregnancy, labor and puerperium. In some cases of gestation the womb may become detached from the abdominal wall, but even then, as a rule, no relapse of the displacement does occur after labor.

7. Ventrofixation does not give rise to any disturbances of the bladder.

8. The prognosis in cases of a pure and simple hysteropexia does not differ in any way from that of exploratory abdomenal section. In

other words, the operation is entirely free from any danger, provided all aseptic rules are strictly observed.

9 In such cases where the procedure is combined with division of adhesions or with removal of diseased uterine appendages the prognosis is somewhat less favorable.

10. On the whole hysteropexia fully deserves to occupy a prominent place amongst the most valuable operations of modern gynecological surgery (*cft. Annals of Surgery*, October, 1890, pp. 311 and 313).—*St. Petersburg Inaugural Dissertation, 1891–1892, No. 5, pp. 181.*

IV. Foreign Body in the Vagina. By Dr. N. N. MOHILEV (Russia). A woman of fifty applied to the Mohilev Lying-in Hospital on account of severe pain during defecation of considerable standing, to which incontinence of urine had added itself quite recently. According to her statements, about six years previously she had contracted uterine prolapsus. In order to correct the latter, a female friend of hers had taken a glass-stopper from a decanter, broken its stem, and introduced the stopper's head into the vagina. "The home-made pessary had been worn by the patient ever since, successfully preventing the prolapsus and never causing any inconvenience until the time stated. On examination the foreign body proved to be firmly embedded in the upper third of the vagina, which was constricted and rigid at the level. The canal contained a number of calcareous concretions, some of them being as large as a nut. After some unsuccessful attempts the disc was ultimately turned edgeways, firmly grasped with forceps, and extracted, a quantity of sero-purulent fluid escaping during the operation. A subsequent examination revealed the presence of a vesico-vaginal fistula, situated 3 cm. above the external orifice of the urethra. Higher up, in the anterior poruit, there was found another slight slit-like opening leading into a purulent cavity whose anterior boundary was formed by the posterior wall of the bladder and the posterior by the wound. The latter was slightly enlarged and retroverted, the cervix shortened and flattened, the external os fully obliterated, the posterior vaginal wall traversed with numerous irregular fissures, while the mucous membrane of the upper third of the canal was covered with a continuous croduyidid deposit. The diameter of the stopper amounted to 5¼ cm. [The issue of the case is not stated. A case of a glass-disc remaining in the vagina for ten years was recently reported by Dr. F. L. Hayger: *vide the Annals of Surgery, May, 1891, p. 371, Reg.*]—*Proceedings of the Mohislev Medical Society for 1891.*

VALERIUS IDELSON (Berne).

V. The Indications for and the Results to be Expected from Supravaginal Amputation of the Cervix Uteri for Carcinoma. By DR. WINTER (Berlin.) The author remarks that in cases of carcinoma uteri total extirpation has, in the course of years, continued to become a more satisfactory and, as a rule, a more safe operation, and it is employed exclusively by the majority of German operators. The supravaginal amputation of the cervix, which was devised by Schrœder fifteen years ago, has been almost entirely abandoned, notwithstanding the fact that Schrœder developed it into a safe method, and Hoffmeier has shown that the permanent results in cases of carcinoma of the vaginal portion are as good as those following total extirpation.

The author, however, advocates resort to supravaginal amputation in cases in which the carcinoma is limited to the vaginal portion of the cervix, and in these only, and supports his views by the experience of the University Gynecological Clinic of Berlin, in which, since 1878, 155 supravaginal amputations for carcinoma were done. Of these 10 died from the operation, 13 were lost from sight: there remained 132 available for statistics. Of these 80 suffered from relapse, 49 remained healthy longer than two years, and 27 longer than five years. No relapse is likely to occur after more than five years, so that about 25 per cent. of recoveries will represent the final result of supravaginal amputations. These results are not inferior to those obtained by total extirpation in similar cases. The mortality of supravaginal amputation: Olshausen, Fritch, Leopold, Kaltenbach and Schauta, out of 474 extirpations had 40 deaths—that is, about 8.4 per cent. for a series of operations extending up to the present time. Supravaginal amputation has a mortality of 6½ per cent., and these deaths almost all occurred while the operation was being perfected.

Since the year 1884 650 operations have been reported, with only *one* death, and this was not wholly referable to the operation. Supravaginal amputation, therefore, should not be wholly discarded, since it is much less dangerous than total extirpation, and since the women may bear children without difficulty in the part of the uterus which is left, and since there are no dangers or sufferings which originate in the latter.

The number of the uterine cancers on which radical operations can be performed increases from year to year, with the progress of time, since the diagnosis can be made more accurately and earlier, and the methods of operation are continually growing more practicable. The writer has been able to prove this from the cases of the Berlin Clinic for Women, where since 1883 the percentage of cases operable has increased from 19 to 37. In general, however, to-day, in the great hospitals, on the average, about 25 per cent. of the women suffering from cancer undergo operation. Since about one-fourth of all the women who are operated on remain free from relapse it follows that about one-sixteenth or seven per cent., of these patients are permanently cured of cancer, while 93 per cent. of the sufferers continue to-day to perish of cancer as formerly.—*Annals of Gynecol. and Pædiat.*, April, 1892.

VI. German Statistics on the Prognosis and Treatment of Extra-uterine Pregnancy. DR. WINTER (Berlin).—Of 626 cases collected by Schauta, occurring during the years from 1876 to 1890, 369 recovered and 257 died, a mortality of 41 per cent. This was distributed as follows: In the first half of pregnancy 381 cases, 218 recovered, 163 deaths; in the second half of pregnancy 93 cases, 40 recoveries, 53 deaths; after the normal term of pregnancy 152 cases, 111 recoveries, 41 deaths; in 241 cases the cause of the affection was left entirely to nature, and of these 75 recovered, 166 died, the mortality thus being 66 per cent.; such cases, therefore, in the first half of pregnancy have a much more unfavorable prognosis than that of extra-uterine pregnancy in general, which has a mortality of 41 per cent., from which the conclusion may be drawn that the prognosis is better for those cases which are operated upon.

The most frequent spontaneous termination of extra-uterine pregnancy in the early months was rupture and hemorrhage into the general abdominal cavity; this occurred 128 times, with 121 deaths; the prognosis in such cases is, therefore, extremely gloomy. Twenty-two times rupture occurred with formation of hæmatocele; of these cases 8 died. In the second half of pregnancy death was caused most frequently by peritonitis, in consequence of decomposition of the fœtal sac after death of the fœtus. After the normal end of pregnancy the most frequent termination in cases which were left to nature was perforation of the fœtal sac into the intestine, vagina or bladder, or through the abdominal wall; this most frequently occurred in the course of one or two years, but was delayed in some cases much longer, even up to ten years.

Treatment.—In recent years the treatment of extra-uterine pregnancy has become entirely surgical. Killing the fœtus by electricity has not been accepted at all in Germany. Injections of morphine have only been employed, in any considerable number of cases, by Winckel, who has treated seven cases in this way, usually by injecting through the abdominal wall; two of these patients died and five recovered. In the early months, if the fœtal sac has not yet ruptured and the ovum is living, all operators are agreed that the sac should be extirpated. If, on the other hand, the death of the ovum seems probable, as indicated by the expulsion of decidua, protracted hemorrhages, hardening of the tube and diminution of the size of the fœtal sac, there is a division of opinion as to what should be done. Martin and Veit recommend the extirpation of the fœtal sac in these cases also, supporting their opinion by a series of cases where, after such symptoms, rupture of the sac and fatal hemorrhage occurred. Other surgeons use expectant treatment for these cases. Veit deserves the most credit for establishing the operative treatment for extra-uterine pregnancy, by extirpation of the fœtal sac. He operated 11 times in the year 1890; in 2 cases the ovum was living, in 9 it was dead; all the patients recovered. If the sac is ruptured and hemorrhage into the abdominal cavity has taken place, it is much more difficult to decide what course is indicated.

Schauta recommends operation even under such circumstances, basing his opinion on his statistics:

Rupture, with hemorrhage in the abdominal cavity, without operation: 115 died and 7 recovered.

Rupture, with hemorrhage into the free abdominal cavity, with laparotomy: 19 died, 102 recovered.

These numbers are inexact, since in the cases which terminated favorably the diagnosis of extra-uterine pregnancy was notalways positive; of the nineteen fatal cases only six deaths were due to the operation, three on account of hemorrhage, one from ileus and two from sepsis, while twelve or more died only because the operation was delayed too long. The prognosis as to controlling the hemorrhage by laparotomy is therefore very favorable; in many cases the patients were saved in spite of the most extreme anæmia. Usually there is sufficient time to make suitable preparation for laparotomy, to wait for formation of hæmatocele when there is internal bleeding is a very unsafe matter, because it depends on the presence of previously existing adhesions in Douglass' space.—*Annals of Gynecol. and Pædiat*, April, 1892.

SYPHILIS.

1. **Case of Gummata of the Elbow and Knee-Joints.** By Dr. Nikolai A. Mikhailoff (St. Petersburg, Russia). A male peasant, aged 25, had contracted hard chancre in March, 1887. In August there had appeared rash over the body, sore throat and alopecia, to be followed in November by shallow ulcers over the shoulder-blades and extremities. In October, 1888, the patient had first noticed weakness of his left lower limb, with pain about the knee, on movements, and rigidity and pain about the left elbow-joint. When admitted to Professor V. M. Tarnovsky's clinic, in March, 1889, the man had enlarged and indurated cervical, cubital and inguinal glands, and a typical circular gummous ulcer on the posterior surface of the left thigh. The left knee-joint was markedly swollen (its circumference being 3 cm. larger than that of the right knee), œdematous, painless on pressure, the skin tense, but of a normal color. The limb was flexed at the joint to the angle of 165°

and could not be extended beyond 175°, all active and passive movements being associated with pain. The left elbow-joint presented similar changes, the extremity being immovably fixed at an angle of 150°. Near the inner condyles of the humerus there was situated a painless, flat, dense, immobile periosteal tumor of the size of a walnut. The treatment adopted by the author consisted in intramuscular injections of salicylate of mercury (1⅜ grains at a time) suspended in vaseline-oil. After 20 injections (in the course of 40 days) the patient was discharged quite well, the cutaneous ulcer had soundly cicatrised, the articular gummata disappeared, all movements of the joints became normal, etc. Dr. Mikhailoff draws attention to the fact that gummous lesions of joints occur relatively rarely. At all events, international literature of the subject remains yet rather scanty. Of Russian authors, Dr. M. Kitaëvsky (*vide* the *London Medical Record*, 1882, p. 280), and Professors Mansüroff and Monastyrsky have published the most valuable contributions, to our knowledge, of syphilitic affections of joints.—*Vratch*, No. 19, 1890, p. 432.

VALERIUS IDELSON (Berne).

REVIEWS OF BOOKS.

PRACTICAL MIDWIFERY. By EDWARD REYNOLDS, M. D. A Handbook of Treatment. 8vo. pp. 424. Illustrated. New York, William Wood & Co. 1892.

As its title indicates, this volume is concerned with the art rather than with the science of midwifery. The author deals with the subject upon its practical side, recognizing the fact that in the management of gestation, labor, and the puerpual state, it is not enough that one knows what should be done; he must know also how to do it. His experience in directing the practical obstetric work of advanced students at the Harvard Medical School has led him to appreciate the difficulties that inexperience encounters in the conduct of these cases, and its need for fuller information than the systematic text-books on the subject furnish. The book is divided into six parts, the sub-titles being as follows: Pregnancy; Labor; Obstetric Surgery; Abnormal Labor; Pathology of Labor; the Puerperium. Under these heads all the phenomena of the parturient period is considered, with the diseases and complications peculiar and incident thereto. In all cases the plan of treatment advised is described in detail, with a simple directness of statement that is admirably suited to the character and purpose of the book. Especial care has been taken to make these descriptions clear, and the text is frequently supplemented by explanatory foot-notes.

Except under conditions which make it altogether impracticable, the observance of strict antisepsis in the lying-in chamber is insisted upon. The system that the author describes (and which can be readily carried out in private practice) is employed in the New York Maternity and in the Boston Lying-in Hospital. Since its adoption the death rate from septicæmia has been reduced in remarkable degree in both institutions: In the former from 6.06 per cent. for the year immediately preceding its introduction, to .0059, .0018, 0021 per cent., respectively, for the three years immediately following; in the latter, from 4.58 per cent. in '83, '84, under the old methods, to .0064 per cent. in '85, '86 under the new (antiseptic), while from January, 1886, to January, 1891—five years—there were only three deaths from this cause.

Although the author believes, with good reason, that thorough *antisepsis* is essential to the best results in obstetric practice, the record of the work of the out-door clinic in Boston for the last three years indicates that immunity from severe septicæmia may be secured by the strict observance of *asepsis* during labor. In this service, the material being drawn from the most degraded and filthiest of the city's population, labor is conducted aseptically, "all meddling with the vagina during convalescence being scrupulously avoided," with the result that the mortality, previously very high, has been reduced to practically nothing, a thousand consecutive cases having been confined without a death from any cause.

These records abundantly prove the value of the methods in question. More than this, they show that between antisepsis and asepsis there can be no compromise. Either one system or the other must be employed. There is no middle course.

The book is designed particularly to meet the wants of the inexperienced practitioner; not, however, to take the place of well-known text-books, with whose teachings the reader is supposed to be familiar. It is supplemental, expositive, and, as such, supplies a deficiency in the literature of the subject to which it is a valuable addition.

D. R. BROWN.

A TREATISE ON BRIGHT'S DISEASE OF THE KIDNEYS. By HENRY B. MILLARD, M. A., M. D. Third edition. Illustrated. William Wood & Co., 1892.

In the preface to the first edition of this work, which appeared in 1883, the author states that "it is the result of the experience of nearly twenty-six years of hospital and extensive private practice, and of several years study in the laboratory." Two years later, in 1885, a second edition was published. In the preface to this, the third edition, the author remarks that since the appearance of the second edition he has "devoted much time to retracing former experiences, and adding new," with the result that many opinions and conclusions previously entertained have been changed. In the present volume, therefore, we have the results of investigations into the pathology, diagnosis and treatment of diseases of the kidneys extending over a period of nearly thirty-five years; the statement in the preface referred to indicating that they have been pursued in the true spirit of scientific inquiry, which endeavors to interpret facts without prejudice, and seeks only to establish the truth.

The opening chapters deal with the minute anatomy of the kidneys, and contain an account of recent researches made by the author and others. Considerable space is given to discussion of the rod-like structure of the epithelia, first described by Heidenhain, which is regarded as "part and parcel of a reticulum present within every epithelium" this reticulum being "living matter," having the power of motion and of reproduction.

In the light of recent experiments the kidneys are believed to be purely organs of *secretion* as regards hippuric acid; therefore, and because urea and uric acid are found in larger quantities in the urine than in the blood, it is suggested that these products also are largely the result of the secretory function of the kidneys. Indeed, the urine is invariably referred to as a "*secretion.*" These views, of course, are opposed to the generally accepted teaching that urea is altogether excrementitious, and the kidneys organs of excretion.

The author entirely renounces his belief in physiological albuminuria, including in the term temporary, intermittent, transient, cyclic, and dietetic. He meets the objection that different observers have found albumen in urine passed after prolonged exercise, exposure to cold, etc., by persons in apparent health, by assuming that in every such instance the analysis has been in fault, some other substance being mistaken for albumen. Few, I think, will agree that "when albumen is found in apparent health there is too great readiness to assume that no pathological condition exists;" but he alleges this as one of the reasons for the opinion entertained by so many writers that the appearance of albumen in the urine under certain conditions is compatible with organic integrity of the kidneys.

In further support of his position he deems it sufficient to say that he has "examined the urine of a larger number of patients unaffected by renal diseases without finding a trace of albumen." Obviously such observations are not to the point. It, however, is inconceivable that the author should change the convictions of almost thirty years upon so important a matter, without adequate reasons, even if, as set forth in the chapter which treats of the subject, their sufficiency is not apparent.

Among the tests for albumen five only are mentionod: nitric acid, heat, the nitric-magnesian test, Tauret's and the author's (Millard).

The formula of the last mentioned is given as follows:

R.—Acidi phenic (glaciæ 95 per cent.)	oz. ij
Acid. acet. pur.	oz. viij
M. Add liquor potass	dr. ijvj
Filter.	

"The mixture should be acid, colorless, and perfectly limpid." According to the author, both nitric acid and heat will show albumen if present in the proportion of 1-100000; Tauret's and Millard's test are both more sensitive, and about equally so, revealing it in the proportion of 1-300000. In the application of these tests, especial attention is called to the liability of mistaking *mucin* for albumen. As this substance is dissolved by strong acids, it is difficult to seec how its presence can interfere with the nitric acid test properly performed.

Under the head of *Nephritis without Albuminuria* the histories of several undoubted cases of the disease are recorded in which repeated daily examinations of the urine failed to show albumen, and the author justly remarks that "The conclusion that nothing is the matter with the kidneys, because, after several examinations of the urine no albumen is found, is sometimes literally a fatal error." Again he says: "To test the urine simply for albumen is often useless." These truths cannot be insisted upon too often or too emphatically. It is undoubtedly true that early nephritis not infrequently escapes recognition; a test for albumen with negative result is apt to end the routine analysis. Quantitative tests for urea are not mentioned. Must the reader infer that knowledge of the quantity of urea excreted is of no importance?

Diseases of the kidneys are divided into three varieties:

1. Croupous (parenchymatous), acute and chronic.
2. Interstitial.
3. Suppurative.

As regards the first and second varieties, they are considered to differ only in the "degree in which the connective tissue and the epithelia are respectively affected." Clinically it is not usually difficult to distinguish between them. Both forms are discussed at length as regards the pathology, etiology, and treatment. Concerning the treatment of the different forms of the disease, the author remarks: "It seems unnecessary, as it is almost impossible, to make the treatment of each form of nephritis the subject of individual consideration, on the theory that there is any very great difference in the character of the remedies in use or in their mode of employment. The same principles and remedies which are applicable to the acute are appropriate to the chronic form."

"An important general distinction in the selection of remedies in acute and chronic nephritis is that whereas a certain class of irrifant and stimulating diuretics, as squills, iron, cantharides, turpentine, etc., are sometimes not only useless, but dangerous in acute inflammation and recent congestions of the kidneys, in proportion as these conditions recede from an acute or recent character, they will sometimes be found appropriate and serviceable."

The author evidently believes in *treating* Bright's disease Due attention is called to the importance of proper regulation of the diet and of maintaining the functional activity of the skin. The beneficial effects of the hot-air bath administered daily or every other day are particularly referred to. Numerous drugs useful as diuretics are mentioned. Among "curative" remedies he gives first place to calomel and the bichloride of mercury, the former being generally preferred in cases of the intestitial, the latter in cases of the croupous variety. "In some cases, without being able to tell why, I have found benefit to be derived from the opposite course." Calomel is preferred for its diuretic effects. The dose employed ranges from gr. $\frac{1}{100}$—$\frac{1}{10}$—$\frac{1}{20}$, repeated every two or three hours. The bichloride is given in the form of tablet triturates, the dose being from gr. $\frac{1}{200}$—gr. $\frac{1}{50}$; in some cases not more than gr. $\frac{1}{300}$. As to the action of calomel in this class of ailments, it is suggested that "since it is of undoubted use in controlling inflammations of mucous and serous membranes, as enterites, pleuritis, peritonitis, iritis, etc., and in inflammatory conditions of the lungs and liver characterized by plastic effusions, there is no reason why it may not produce analogous benefit in affections of the parenchymatous structure and of the connective tissue of the kidneys."

"Without supporting any supposed law of cure," he points out the fact that poisoning by corrosive sublimate produces much the same changes in the kidneys as are found in acute croupous nephritis.

In the treatment of convulsions, morphia, chloroform, chloral, and pilocarpine are mentioned.

The entire paragraph (which comprises all that is said upon the subject,) relative to the use of chloroform in this condition is quoted:

"In chloroform I believe we have a remedy equally efficacious with and less objectionable than morphine. The conditions of the heart in which chloroform cannot be administered should, however, be considered, nor must it be forgotten that in certain conditions of the kidneys the use of anæsthetics may be attended with danger; although as regards the kidneys chloroform is much safer than ether."

This paragraph—taken almost at random—is quoted because it fairly illustrates what is conceived to be a serious defect, particularly in a hand-book, namely, lack of precision. All that the author says in this paragraph is undoubtedly true, but undoubtedly the busy practitioner who refers to it desiring to know how to manage a case of uræmic convulsions will be disappointed.

A hand-book should be comprehensive, but terse, incisive, specific: the volume before us lacks these essential qualities. It is neither methodical in arrangement, nor precise in statement. Moreover, it bears marks of great carelessness, or haste, in preparation; for example, both iron and arsenic are *twice* referred to as useful in the treatment of nephritis, the second reference in each case being essentially a repetition of the first. Under arsenic the author says:

(Page 286.)	(Page 287.)
"Arsenic is a remedy from which I have *often derived benefit* in nephritis."	"I have found benefit from its use (arsenic) *in only a few instances.*"

D. R. BROWN.

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ANNALS
OF
SURGERY

A MONTHLY REVIEW OF SURGICAL SCIENCE AND PRACTICE

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